CITY OF CINCINNATI
DEPARTMENT OF TRANSPORTATION & ENGINEERING

2016 STREET REHABILITATION PROGRAM
CIP – #4

SPECIAL PROVISIONS

These Special Provisions were assembled by a Registered Professional Engineer in the State of Ohio, as set forth by the Ohio Revised Code.

SIGNED: Christopher M. Ertel, P.E.
DATE: 20 November 2015

CITY OF CINCINNATI
DEPARTMENT OF TRANSPORTATION & ENGINEERING

2016 STREET REHABILITATION PROGRAM – CIP #4

SPECIAL PROVISIONS

(NOTE: Bold italicized type indicates new specification language. Other bold type is for emphasis.)

The 2013 State of Ohio Department of Transportation Construction and Material Specifications (ODOT CMS) and the 2013 City of Cincinnati Supplement thereto will govern this project.

These Special Provisions do not replace the ODOT CMS or the City Supplement to the ODOT CMS. These Special Provisions are additional requirements.

Quantities may be added or subtracted, at bid unit prices, by adding or deleting streets to this contract at the discretion of the City Engineer.

New street rehabilitation items of interest include the following:

- ***Provided clarification regarding liquidated damages associated with sawcut slurry or dust.***
- ***Provided two sequences of operations options to complete the work items associated with this project. (Standard Sequence of Operations (Option #1) or the Modified Sequence of Operations (Option #2)***
- ***Provided clarification regarding reconstructing pavements with Item 301 – Asphalt Concrete Base, PG 64-22.***
- ***Revised the type of 12" conduit used from Type H to Type B.***
- ***Added Item 611 – 12" Conduit, Type B, as Per Plan to accommodate replacing or installing new pipe crossings within the right of way.***
- ***Provided clarification regarding the volume of masonry work associated with Item 611 – Inlet Repaired and Adjusted to Grade and Item 611 – Inlet Repaired (Ditch or Curb) and Adjusted to Grade.***
- ***Provided clarification regarding Item 611 – Construction of New Double Gutter Inlet (DGI) or New Combination Inlet (CI).***
- ***Provided clarification for the use of new castings (frames and/or grates) associated with Item 611 – Inlet Reconstructed to Grade.***

SCOPE OF WORK

This contract involves the rehabilitation of the existing pavement and curbs for the following streets, which are located in the **College Hill** and **Mt. Airy** areas of Cincinnati:

Street	From	To	Area (SY)
Archland Drive	Montevista Drive	North Terminus	3,440
Aspen Avenue	North Bend Road	Heitzler Avenue	2,083
Aspen Way	Heitzler Avenue	Heitzler Avenue	4,832
Bahama Terrace	East Terminus	Colerain Avenue	3,575
Baywood Lane	Hollywood Avenue	Corporation Line	480
Bluebell Drive	East Terminus	Thornhill Avenue	5,361
Brushwood Avenue	Daly Road	West Terminus	5,405
Cary Avenue	Cedar Avenue	North Bend Road	5,160
Collegevue Place	North Bend Road	North Terminus	2,575
Daly Road	Corporation Line	Corporation Line	19,144
Galbraith Road	Corporation Line	Corporation Line	6,854
Hawaiian Terrace	East Terminus	Colerain Avenue	9,636
Heitzler Avenue	Aspen Avenue	Aspen Avenue	4,256
Lanius Lane	South Terminus	Hillcrest Road	1,701
Larch Avenue	Hamilton Avenue	Belmont Avenue	3,891
Springbrook Drive	Corporation Line	Daly Road	3,408

Total Area → 81,801 S.Y.

The work of this contract includes the following: planing the existing asphalt wearing course as necessary; performing partial and full-depth pavement repairs; placing an intermediate course of asphalt as indicated; repairing deteriorated curbs; constructing curb ramps, concrete walk, and driveway aprons where necessary; performing inlet adjustments; adjusting utility castings to grade; resurfacing the entire pavement with asphaltic concrete; performing the necessary pavement marking work; and replacing traffic signal loop detectors, where applicable.

This contract also involves improvements along the west side of Collegevue Place consisting of new concrete sidewalk and driveways as well as removing, repairing and resetting existing gas street lights. The improvements are shown on the Collegevue Place Sidewalk Project plans.

Location maps are included in **Appendix A** of these Special Provisions. These maps are for informational purposes and do not necessarily define the exact limits of work for each street. The Engineer will determine the actual limits of work.

STREET DATA

Street	Length	Width	Surface	Base	Curb Repair *	Curb Repair Length
Archland Drive	1,240'	24'	Asphalt	Concrete	17%	419' Type R-5
Aspen Avenue	662'	25'	Asphalt	Macadam	7%	98' of Type P-4
Aspen Way	1,812'	24'	Asphalt	Concrete	100%	10' Type P-5 3,614' Type R-5
Bahama Terrace	963'	33'	Asphalt	Concrete	100%	1,926' Type P-4
Baywood Lane	180'	24'	Asphalt	Concrete	100%	360' Type R-5
Bluebell Drive	1,927'	24'	Asphalt	Concrete	30%	1,155' Type R-5
Brushwood Avenue	1,858'	24'	Asphalt	Concrete	3%	95' Type P-5
Cary Avenue	1,518'	30'	Asphalt	Concrete/ Macadam	100%	800' of Type P-5 2,236' type P-4
Collegevue Place	949'	24'	Asphalt	Concrete	1%	20' Type P-5
Daly Road	3,978'	41' - 50'	Asphalt	Concrete	28%	2,263' Type P-5
Galbraith Road	1,391'	40' - 50'	Asphalt	Concrete	5%	142' Type P-5
Hawaiian Terrace	2,254'	36'	Asphalt	Concrete	100%	4,508' Type P-4
Heitzler Avenue	1,875'	20'	Asphalt	Concrete	1%	24' Type R-5
Lanius Lane	638'	24'	Asphalt	Macadam	3%	42' Type A-1
Larch Avenue	1,450'	22' - 25'	Asphalt	Macadam	100%	2,900' Type P-4
Springbrook Drive	1,258'	24'	Asphalt	Concrete	1%	360' Type R-5

*On streets where 100% curb replacement is indicated on the chart above, the majority of the curb on the street has been identified as requiring replacement under this contract. However, there may be short sections of recently constructed curb, which will not necessitate replacement at this time. The City may exercise its discretion to allow those sections to remain in place and not replace them with new curb under this contract. Where 100% rolled curb replacement is specified, expose the new gutter plate so the elevation matches the final surface course elevation.

NOTE: The determination of the base material of each street is based upon a visual inspection of the street and a review of City Pavement Record Maps.

COMPLETION OF WORK

Per ODOT section 109.12A, achieve substantial completion **180 Calendar Days** from the Notice to Proceed date.

Additionally, the Contractor is limited to a specific number of calendar days for working on a given street. Construct each street in this contract within **60 Calendar Days** from the date of curb removal work on that street. This time frame includes the application of permanent pavement markings.

If the Contractor begins pavement planing on a street, the street must be completed (final paving and striping) by December 15 of that year, regardless of the cumulative days for weather delays, per ODOT 108.06, granted before and after the date of the pavement planing. The Contractor must adhere to the temperature restrictions for paving and striping. If work on the street cannot be completed by December 15, the Contractor is responsible to adjust manholes, valve chambers, inlets, and valve boxes to the present grade and maintain striping until final paving is completed at no additional cost to the City. If no work is planned after December 15, during the winter shutdown,

the Contractor must remove all temporary road construction signs and re-install them when work resumes at no additional cost to the City.

For projects that carryover into the next year, resume work by March 15.

LIQUIDATED DAMAGES

The City will assess liquidated damages to the Contractor in any of the following circumstances:

1. Per 108.07, failure to substantially complete the contract within the **180-Calendar Day** contract length.

2. Upon completion of the pavement planing work for a given street, perform any necessary partial-depth pavement repairs and place an intermediate course on that street within **7 Calendar Days**. Failure to meet this requirement results in liquidated damages assessed in the amount of **$1,000** for every calendar day beyond the 7-day limit per day per street.

3. ***Failure to properly capture sawcut slurry or dust after sawing the pavement and remove from site will result in liquidated damages of $500 per instance.***

4. Failure to comply with the requirements of 614 – Maintaining Traffic at the rate of **$500** per 15-minute interval for the duration of the violation once the Contractor has been put on notice by the Engineer.

5. The City will assess liquidated damages in the amount of **$1,000** per day per street until each street reaches Substantial Completion based on the **60-Calendar Day** limit for each street within this contract.

6. Failure to complete the punch list and failure to submit support documents to facilitate project closeout in accordance with Section 109.12 of the City Supplement results in an administrative fee assessed at the rate of **$100** per day.

7. Failure to complete the hydroseeding work within the 6-day time frame of completing the curb work will result in liquidated damages of **$100** per day per incomplete street.

8. Failure to construct new curb within 2 calendar days of excavation will result in liquidated damages of **$500** per day per incomplete street.

ESTIMATED QUANTITIES

The estimated quantities for each street in this contract are contained in **Appendix B** in spreadsheet form. These quantities are approximate, and will be used in determining the total amounts of bids for the purpose of determining the lowest and best bidder. During the term of the contract, and at the option of the Engineer they may be increased, decreased, or non-performed as conditions dictate and/or when the need for any item cannot be determined until the completion of other contractual items and/or the proper inspections have been made.

TOTAL OF PROPOSED ITEMS

List the unofficial total of the bid on the Bid Form. A line is provided at the end of the Bid Form for this purpose.

This total, being unofficial, is subject to change in case of errors found in figuring item extensions, addition of total extensions, or other errors. In any case, the City is not responsible for any variance found between the original unofficial total listed and that total used as final.

CONTINGENCY QUANTITIES

Do not order materials or perform work for items designated in these Special Provisions to be used "as directed by the Engineer" unless authorized by the Engineer. Incorporate the actual work locations and quantities used for such items into the final change order governing completion of this project.

SCHEDULE

Submit a project schedule to the Engineer at the Pre-Construction meeting. Identify anticipated locations and times of work broken down into no less than one (1) week intervals. The Engineer must approve the schedule prior to the start of any work. Should the schedule slip by more than one (1) full week due to any reason, update the schedule at the request of the Engineer.

This project is divided into three phases as follows:

Phase I
Phase I includes constructing all work items associated with **Archland Drive**, **Aspen Avenue**, **Aspen Way**, **Baywood Lane**, **Bluebell Drive**, **Brushwood Avenue**, **Cary Avenue**, **Daly Road**, **Galbraith Road**, **Hawaiian Terrace**, **Heitzler Avenue**, **Lanius Avenue**, **Larch Avenue** and **Springbrook Drive**. Complete Phase I within **180-Calendar Days** from the Notice to Proceed date.

Phase II
Phase II includes constructing all work items associated with **Collegevue Place**. Phase II may not begin until May 7, 2016 and must be completed by August 15, 2016 to accommodate the Eden Grove Academy Elementary School schedule. Complete Phase II within **60-Calendar Days** as noted in the Completion of Work section.

Phase III
Phase III includes constructing all work items associated with **Bahama Terrace**. Phase III may not begin until MSDGC completes their work on the referenced street. The estimated start date for Phase III is August 1, 2016. Complete Phase III within **60-Calendar Days** from the restart date of August 1, 2016 as noted in the Completion of Work section.

SCHEDULE UPDATES

Submit schedule updates on a monthly basis by Friday of the first full week of month or as directed by the Engineer. Show actual durations of items complete and the affect on the remaining activities. Identify any delays, reason and responsibility for the delays, affect on the overall contract completion and request for excusable time extension. No time extension will be considered without timely submittals of all monthly schedule updates.

The schedule will determine the liquidated damages during construction.

SEQUENCE OF OPERATIONS AND CONSTRUCTION SCHEDULE LIMITATIONS

Contractor may choose to complete the work items associated with this project via the Standard Sequence of Operations (Option #1) or the Modified Sequence of Operations (Option #2). If the Contractor chooses the Modified Sequence of Operations (Option #2), any concrete work damaged over the course of the project or not meeting an appropriate grade will be removed and replaced by the Contractor at no additional cost to the City.

Standard Sequence of Operations (Option #1)

1. Perform full-depth pavement repairs. Any additional full-depth repairs, as determined by the Engineer, at any time within the contract length, will be paid at the contract price.

2. Plane existing asphalt wearing course where required and wedge all castings, butt joints, curb ramps, and driveways immediately. Install Class I (full pattern) work zone pavement markings per the Pavement Marking Plans by the end of the day.

   NOTE: In some instances, the planing operation exposes disintegrated pavement, which is beyond temporary repair with Item 254 – Patching Planed Surface. The Engineer may direct the Contractor to place the intermediate course on these disintegrated streets within three days after completion of the planing work. Do not apply 407 Tack Coat to the surface of the disintegrated pavement.

3. Place asphalt concrete intermediate course on street as indicated. Wedge all castings, butt joints, curb ramps, and driveways immediately. Install Class I (full pattern) work zone pavement markings per the Pavement Marking Plans by the end of the day.

4. Perform curb repairs and construct curb ramps along with reconstructing concrete walk and driveway aprons where necessary. Restore all grass areas adjacent to driveways, walks, and curb replaced with this project. Perform casting adjustments, and place asphalt wedges around all castings. Coordinate adjustments of all non-contract utility castings.

5. Place asphalt concrete surface course on street and install Class I (full pattern) work zone pavement markings per the Pavement Marking Plans by the end of the day.

6. Perform the necessary loop detector replacement work.

7. Perform the required permanent pavement marking work per the Pavement Marking Plans.

Modified Sequence of Operations (Option #2)

1. Perform full-depth pavement repairs. Any additional full-depth repairs, as determined by the Engineer, at any time within the contract length, will be paid at the contract price.

2. Perform curb repairs along with reconstructing concrete walk and driveway aprons where necessary. Restore all grass areas adjacent to driveways, walks, and curb replaced with this project.

3. Plane existing asphalt wearing course where required and wedge all castings, butt joints, curb ramps, and driveways immediately. Install Class I (full pattern) work zone pavement markings per the Pavement Marking Plans by the end of the day.

   NOTE: In some instances, the planing operation exposes disintegrated pavement, which is beyond temporary repair with Item 254 – Patching Planed Surface. The Engineer may direct the Contractor to

place the intermediate course on these disintegrated streets within three days after completion of the planing work. Do not apply 407 Tack Coat to the surface of the disintegrated pavement.

4. Place asphalt concrete intermediate course on street as indicated. Wedge all castings, butt joints, curb ramps, and driveways immediately. Install Class I (full pattern) work zone pavement markings per the Pavement Marking Plans by the end of the day.

5. Construct curb ramps where indicated. Restore all grass areas adjacent to curb ramps replaced with this project. Perform casting adjustments, and place asphalt wedges around all castings. Coordinate adjustments of all non-contract utility castings.

6. Place asphalt concrete surface course on street and install Class I (full pattern) work zone pavement markings per the Pavement Marking Plans by the end of the day.

7. Perform the necessary loop detector replacement work.

8. Perform the required permanent pavement marking work per the Pavement Marking Plans.

JOB MEETINGS

The Engineer will schedule job progress meetings with the Contractor and other sub-contractors every two weeks or as necessitated by the job progress. Prepare, record, and distribute the minutes of these meetings to all participants. Handwritten minutes are acceptable.

"NO PARKING" POSTING REQUIREMENTS

Refer to **Appendix C** for guidelines from the Cincinnati Police Department for obtaining and posting "No Parking" signs for streets under construction.

ACCESS TO ABUTTING PROPERTY

Maintain driveways and pedestrian access to abutting properties in a safe and clean condition. Cooperate with the affected business operators in every practical way in order to minimize disruption to their operations. Notify residents and businesses at least twenty-four (24) hours in advance of blocking their drives during construction.

PEDESTRIAN PROTECTION AND ACCESS

Pedestrian protection and pedestrian access will be maintained at all times and will conform to the OMUTCD Part 6D.01, “Pedestrian Consideration”. Pedestrian safety is of utmost importance throughout the life of the project. Do not lead pedestrians into conflicts with work site vehicles, equipment, or operations. Do not lead pedestrians into conflicts with vehicles moving through or around the work site. Pedestrians will be provided with a safe, convenient, and accessible path that replicates as nearly as practical the most desired characteristics of the existing sidewalk(s) or footpath(s). For pedestrian pathway closures, post signs to direct pedestrians to the safest crossing point. If the pathway is to be closed between safe crossing points, post signs in advance of the closed area at a safe crossing point or make arrangements for safe pedestrian passage. The safety of pedestrians is the responsibility of the Contractor.

SALVAGING OLD CONSTRUCTION MATERIALS

Adhere to the requirements of 104.031 of the City Supplement regarding salvaging of old construction materials, such as granite curbing, granite blocks, and paving bricks, if so requested by the Engineer. Should the City exercise this option, the City and the Contractor will agree on a price to haul the material to the designated storage site, and payment for this work will be made out of Item 109.051 – Contract Contingency.

CONSTRUCTION DEBRIS IN SEWERS

Use a Manhole Debris Catcher as manufactured by Grappler Specialty Products: 7160 Sunshine Drive, Eden Prairie, MN 55346 (1-800-949-2679) or approved equal when rehabilitating and/or constructing new manholes, catch basins and structures. The intent is to catch falling debris such as concrete grout mixture, soil, etc.

CONSTRUCTION DEBRIS IN INLETS

Provide inlet protection to prevent construction related debris from entering any inlet within or just outside of the project limits during and after each construction activity, i.e. pavement planing, asphalt concrete application, etc. Construction related debris includes but is not limited to loose pavement grindings or excess asphalt concrete.

FINAL CLEANING UP

Per 104.04 of the City Supplement, clean out all sewers, drains, inlets, manholes, and other underground lines and structures built by the Contractor or affected by the Contractor's work. Remove and install all manhole covers and inlet grates to ensure that none have been sealed shut within one week of final paving. Clean walks, driveways, and sod strips of any construction debris, if applicable.

RESURFACING INTO SIDE STREETS

Due to curb ramp work and pavement transitioning, it may be necessary to extend work into side streets. Plane and resurface up to a length of 30 feet into the side streets that intersect with the streets of this project at the discretion of the Engineer.

WORKING NEAR STREET TREES

Delete first paragraph of Section 105.071 of the City Supplement.

NIGHTTIME CONSTRUCTION

Any construction activities between the hours of 9:00 PM and 7:00 AM will not be allowed. If for any reason the work needs to be done during these hours, the Contractor must submit in writing to the City Engineer a description of the work and the reason why it cannot be performed during non-restricted hours. If the City Engineer agrees with the request, he will issue a permit to allow the work.

UTILITIES

Listed below are the known utilities located within the project construction limits together with their respective owners:

Gas: Duke Energy: 421-9500 (Emergencies: 651-4466)
Electric: Duke Energy: 421-9500 (Emergencies: 651-4182)
Telephone: Cincinnati Bell Telephone: 397-9900
Cable Television: Time Warner Cable Communications: 489-5000
Sanitary Sewers: Metropolitan Sewer District (MSD): 244-1300 (Emergencies: 352-4900 or 244-5500)
Storm Sewers: MSD/Stormwater Management Utility (SMU): 352-1941 (Emergencies: 352-4900 or 244-5500)
Water: Greater Cincinnati Water Works: 591-7700 (Emergencies: 591-7909)
Street Lighting & Traffic Signals: Traffic Engineering Division: 352-3737 (Emergencies: 591-6000)

PROTECTION OF UTILITIES

Two working days in advance of making a cut in the pavement or excavation in the sod space, notify the Ohio Utility Protection Service (O.U.P.S.) and the Oil & Gas Producers Underground Protection Service (O.G.P.U.P.S.).

Contact O.U.P.S. at the following telephone and fax numbers:

Phone: 1-800-362-2764 OR 8-1-1
Fax: (330) 759-2745

Contact O.G.P.U.P.S. at the following telephone and fax numbers:

Phone: 1-800-925-0988
Fax: (740) 587-0446

NON-CONTRACT UTILITY CASTING ADJUSTMENTS

Certain utility castings in the right-of-way will be adjusted to grade by others. These castings include, but are not limited to, gas boxes, electrical boxes, telephone manholes, and other communication manholes. The Contractor will coordinate these casting adjustments with the proper utility company so that the adjustment work is performed in a timely manner without disrupting the project schedule. Contact the pertinent utility companies as soon as possible to begin coordination of these casting adjustments. The Contractor is responsible for notifying, or having the various utility agencies contact the Engineer at least 24 hours in advance of performing the non-contract casting adjustment work.

The Contractor is responsible for properly wedging all non-contract utility castings. Wedge castings per the requirements under 254 – Pavement Planing, Asphalt Concrete in these Special Provisions.

LOOP DETECTORS

The Contractor will be responsible for replacing damaged traffic loop detectors as part of this project.

Exercise extreme care when working in an area with loop detectors. The City and the Contractor will inspect the signalized intersections prior to the start of work to locate detectors and determine whether the detector can be salvaged and to arrange for proper signal operation if the loops must be destroyed. Coordinate the grinding and curb repair operations with City forces to reduce the out-of-service time of the detector.

Loop detectors are present in the pavement at the following intersections:

Daly Road at Galbraith Road
Daly Road at Hollywood Avenue and Springbrook Drive
Hawaiian Avenue at Colerain Avenue

GAS LIGHTS

Gas lights are present on the following streets:

Collegevue Place

Prior to any excavation or pavement and curb removal work, contact O.U.P.S. to locate the gas lines.

The Contractor is responsible to repair any damage to the conduit on these streets due to his operations.

REMOVAL AND RE-INSTALLATION OF TRAFFIC SIGNS

It may be necessary to temporarily remove traffic signs, such as “Stop” and “No Parking” signs, in order to complete the work of this project. The Contractor must re-install such signs as soon as possible upon completion of the work that necessitated the sign removal.

SITE SAFETY PLAN

Adhere to the requirements of 107.071 Site Safety Plan of the City Supplement. Adhere to the requirements of the Occupational Safety and Health Administration (OSHA) for all work, especially any work related to manholes, confined space entry, concrete sawing, air monitoring and overall employee safety.

NOTIFICATION TO AFFECTED PARTIES

Notify adjacent, abutting, and affected persons and businesses of upcoming construction activities per the requirements of 107.22 of the City Supplement.

Do not place door hangers or flyers in mailboxes.

SAWING PAVEMENT

Wherein the Contractor is directed to "sawcut' or "saw cut" the pavement as part of the Street Rehabilitation activities described in this contract, the operation will be limited to the usage of a diamond saw blade not exceeding 1/4 inch in width. No Vermeer™ concrete cutter or similar type of equipment utilizing a wide rotary cutting wheel will be permitted to make saw cuts on this project.

PROPER DISPOSAL OF SAWCUT SLURRY OR DUST

In accordance with the Ohio EPA, shovel or vacuum sawcut slurry or dust after sawing the pavement and remove from site. Do not allow slurry or dust to enter the sanitary/storm sewer system.

MATERIAL TESTING

It is the responsibility of the Contractor to provide safe working conditions for the City testing agent.

ITEM 103.05 – PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND

Adhere to 103.05 of the City Supplement.

ITEM 109.051 – CONTRACT CONTINGENCY

Adhere to 109.051 of the City Supplement. A contingency amount of **$50,000.00** is listed on the Bid Form for this item.

ITEM 201 – CLEARING AND GRUBBING

This work consists of clearing and grubbing all protruding or low hanging brush, shrubs, trees and vegetation within the work area, as required to complete all items associated with the street rehabilitation project. The Contractor may trim any protruding or low hanging brush, shrubs, trees and vegetation to the right-of-way line and to a maximum height of 14 feet above the pavement. Prior to the Contractor removing any trees, the Engineer will deem their removal acceptable.

This item also consists of the removal and legal offsite disposal of all trash, debris and all other foreign material within the work area needed by the Contractor.

Perform the clearing and grubbing work in a safe manner to prevent any private property damage. The Contractor is responsible for repairing or replacing any damaged private property, at his cost, due to negligence.

ITEM 202 – PAVEMENT REMOVED

This work includes rigid pavement removal necessitated by the installation of concrete bus pads. (On rare occasions, this item can be used for removing abandoned driveway aprons.)

Outline removal areas by sawing the pavement full depth. Cut tie bars, hook bolts and dowel bars flush with the vertical face of the remaining slab when removing rigid pavement adjacent to a joint.

Payment for this item includes the necessary sawcutting work.

ITEM 203 – EXCAVATION

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

This work also includes flexible pavement removal necessitated by installation of concrete bus pads.

ITEM 252 – FULL DEPTH RIGID PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT

252.01 Description. Add: Perform work in accordance with the Full-Depth Repair detail drawing in **Appendix D**. The minimum depth of the full depth asphalt concrete repair is 12 inches.

252.02 Removal of Existing Rigid Pavement. Replace with the following: The Engineer will locate and mark all areas for repair before the start of diamond sawing. Saw cut the existing rigid pavement full depth at the limits of the area designated by the Engineer using a diamond saw blade. Dispose of the removed pavement according to Item 202.

252.03 Correction of the Subgrade. Add the following: Excavate subgrade or subbase material to achieve the minimum 12 inch repair thickness. Include this cost of removal in the price bid for this item.

252.04 Placement of Asphalt Concrete. Replace "pneumatic tire roller" in the first sentence of the third paragraph with "steel wheel roller".

Add to the fourth paragraph: Achieve an in-place density of the compacted material equal to or greater than 92% as determined by the City's testing agent.

Add to the end of this section: Complete all areas of full depth pavement removal at the end of each day's operation and open roadway to the normal flow of traffic.

252.05 Method of Measurement. Delete the second paragraph of this section.

252.06 Basis of Payment. Replace the first paragraph with the following: Payment is full compensation for furnishing all materials, removing pavement including full depth pavement sawing, correcting the subgrade, placing flexible pavement, and for all labor, equipment, and incidentals necessary to complete this work.

ITEM 253 – PAVEMENT REPAIR

253.01 Description. Replace with the following: This work consists of full depth removal of existing flexible base pavements, such as asphalt concrete, brick, granite, limestone, wood block, cobblestone, macadam, or other stone/cinder/gravel base pavements; shaping and compacting the exposed material; and placing new asphalt concrete pavement or aggregate and asphalt concrete pavement courses. The minimum depth of the full depth asphalt concrete repair is 12 inches.

253.02 Removal of Existing Pavement. Replace with the following: The Engineer will locate and mark all areas for repair before the start of diamond sawing. Saw cut the existing pavement full depth at the limits of the area designated by the Engineer using a diamond saw blade. Dispose of the removed pavement according to Item 202. Excavate subgrade or subbase material to achieve a minimum 12 inch repair thickness. Include this cost of removal in the price bid for this item.

253.03 Placement of Asphalt Concrete. Delete this section and replace with 252.04 with the following revisions:

Replace "pneumatic tire roller" in the first sentence of the third paragraph with "steel wheel roller".

Add to the fourth paragraph: Achieve an in-place density of the compacted material equal to or greater than 92% as determined by the City's testing agent.

Add to the end of this section: Complete all areas of full depth pavement removal at the end of each day's operation and open roadway to the normal flow of traffic.

253.05 Basis of Payment. Replace the first paragraph with the following: Payment is full compensation for furnishing all materials, removing pavement including full depth pavement sawing, correcting the subgrade, placing flexible pavement, and for all labor, equipment, and incidentals necessary to complete this work.

ITEM 254 – PAVEMENT PLANING, ASPHALT CONCRETE

Plane to a depth of 2 inches for the full width and length of **Archland Drive**, **Aspen Way**, **Bahama Terrace**, **Baywood Lane**, **Bluebell Drive**, **Brushwood Avenue**, **Cary Avenue**, **Collegevue Place**, **Hawaiian Terrace**, **Heitzler Avenue** and **Springbrook Drive**. The Engineer will determine the planning limits at all intersections.

Plane to a depth of 2.5 inches for the full width and length of **Daly Road** and **Galbraith Road**. The Engineer will determine the planning limits at all intersections.

254.03 Planing. Add the following:

No featheredge joints permitted. Form butt joints, at least one inch in depth, along the limits of the grinding area. Place temporary asphalt wedges along all butt joints, driveways and curb ramps.

Upon completion of the planing work, place temporary asphalt wedges along all butt joints, driveways, and curb ramps. Immediately tack and place a compacted 448 Type 1 hot-mix asphalt wedge around all exposed utility castings within the planed area. For castings exposed up to two inches, place a wedge with a minimum diameter of six feet around the casting. For castings exposed greater than two inches, place a wedge with a minimum diameter of eight feet around the casting. Asphalt wedges must extend up to and be flush with the top of the casting.

Include the cost of asphalt wedging after planning operations in the price bid for this item.

For residential streets, either remove asphalt wedges prior to placement of the intermediate course, or the asphalt wedges may remain in place for the placement of the intermediate course if the wedges are properly tacked and compacted to the satisfaction of the Engineer.

For major routes and streets slated for Superpave asphalt concrete, remove asphalt wedges prior to placement of the intermediate course.

254.07 Basis of Payment. Delete the second sentence of this section. Add: Payment includes the installation and removal of asphalt wedges and, if applicable, the removal of any existing asphalt speed humps.

The limits of removal are as indicated below:

Street	From	To	Depth
Archland Drive	Montevista Drive	North Terminus	2"
Aspen Avenue	North Bend Road	Heitzler Avenue	Profile (1")
Aspen Way	Heitzler Avenue	Heitzler Avenue	2"
Bahama Terrace	East Terminus	Colerain Avenue	2"
Baywood Lane	Hollywood Avenue	Corporation Line	2"
Bluebell Drive	East Terminus	Thornhill Avenue	2"
Brushwood Avenue	Daly Road	West Terminus	2"
Cary Avenue	Cedar Avenue	North Bend Road	2"/Profile (1")
Collegevue Place	North Bend Road	North Terminus	2"
Daly Road	Corporation Line	Corporation Line	2.5"
Galbraith Road	Corporation Line	Corporation Line	2.5"
Hawaiian Terrace	East Terminus	Colerain Avenue	2"
Heitzler Avenue	Aspen Avenue	Aspen Avenue	2"
Lanius Lane	South Terminus	Hillcrest Road	Profile (1")
Larch Avenue	Hamilton Avenue	Belmont Avenue	Profile (1")
Springbrook Drive	Corporation Line	Daly Road	2"

Final payment for this item will be the number of square yards planed as determined by City survey measurements.

ITEM 254 – PAVEMENT PLANING, ASPHALT CONCRETE, PROFILING

This work consists of profile grinding the following streets:

Aspen Avenue
Cary Avenue (macadam base section)
Lanius Lane
Larch Avenue

Remove existing pavement to a depth of 1 inch at the edge of pavement tapering to 0 inches over half of the overall pavement width or to the pavement crown and as directed by the Engineer.

Adhere to the pertinent provisions of 254 – Pavement Planing, Asphalt Concrete.

Payment includes only the area planed with each 6-foot pass of the milling machine.

ITEM 254 – PATCHING PLANED SURFACE

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

ITEM 301 – ASPHALT CONCRETE BASE, PG 64-22

Reconstruct the following streets in this contract as shown in the project plans or as directed by the Engineer:

Cary Avenue
Hawaiian Terrace (along curb line in cul-de-sac)
Lanius Lane
Larch Avenue

This work consists of planing the deteriorated pavement and constructing a base course of 301 on a six inch compacted layer of 304 aggregate base on top of a compacted subgrade or as directed by the Engineer. Adhere to the pertinent pavement provisions of City Standard Drawing Accession No. 21510, Standard Local Street Full-Depth Asphalt Roadway Sections.

Asphalt concrete base specifications for this project are as follows:

10" Item 301, Asphalt Concrete Base, PG64-22

The maximum compacted depth of any one layer is 4 inches.

Achieve an in-place density of the compacted material equal to or greater than 92% as determined by the City's testing agent.

Restore access to affected driveways within a 5-day timeframe.

Pavement planing will be paid under Item 301 – Asphalt Concrete Base, PG 64-22. Installation and compaction of aggregate base material will be paid under Item 304 – Aggregate Base. Payment for this item includes subgrade compaction and pavement replacement.

ITEM 304 – AGGREGATE BASE

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

When using with full-depth pavement repairs or asphalt concrete base, excavate areas of failed subgrade or subbase and replace with six inches of compacted 304 material prior to making full-depth pavement repairs or installing asphalt concrete base. Pay for removal of unsuitable soil under Item 203 – Excavation.

The use of crushed recycled concrete is permitted for this item.

401 PLANT MIX PAVEMENTS – GENERAL

401.03 Materials. Add: 703.05 Coarse Aggregate must be 100 percent crushed.

401.04 Reclaimed Asphalt Concrete Pavement (RAP). Add the following to the fourth paragraph: Do not use the RAP contained within the bottom one foot of the RAP stockpile in any asphalt concrete mixes.

401.06 Weather Limitations. Revise the last paragraph as follows: Placement of ***Superpave*** asphalt concrete or any surface course with a polymer modified asphalt binder after November 1st must be approved by the Engineer.

401.14 Conditioning Existing Surface. Add after the first sentence of the first paragraph: Sweep and vacuum the planed pavement surface to the satisfaction of the Engineer before placing the intermediate course.

401.15 Spreading and Finishing and Night Work. Add the following:

Cover the openings of inlets while placing both the intermediate and surface courses. Otherwise, remove all asphalt from inlets immediately after paving the street.

When placing the intermediate course, ramping is not permitted. Upon approaching castings, stop the paver and lift it over any manhole and other roadway castings. Paving may resume once the paver has been lifted over the castings. Observe a lock-down on the paver equivalent to the respective design thickness of the intermediate and surface courses.

Place and compact a 448 Type 1 hot-mix asphalt wedge around all exposed castings immediately following placement of the intermediate course. For castings exposed up to one inch, place a wedge with a minimum diameter of four feet around the casting. For castings exposed greater than one inch, place a wedge with a minimum diameter of six feet around the casting. Asphalt wedges must extend up to and be flush with the top of the casting.

Wedge all driveways, curb ramps, and butt joints.

For residential streets, either remove all asphalt wedges prior to placement of the surface course, or the asphalt wedges may remain in place for the placement of the surface course if the wedges are properly tacked and compacted to the satisfaction of the Engineer. Asphalt wedges remaining in place must be ground to accommodate the full depth thickness of the final surface course.

For major routes and streets slated for Superpave asphalt concrete, remove asphalt wedges prior to placement of the intermediate course.

Add to the seventh paragraph:
Seal gutters with 702.01 asphalt binder. Do not seal gutters within the limits of curb ramps.

401.16 Compaction. Add: Achieve an in-place density of the compacted material ranging between 92.0% and 96.9% as determined by the City's material testing consultant.

Delete the seventh paragraph and replace with the following: Use of vibratory rollers on courses with a thickness under 1.5 inches is permitted.

401.21 Method of Measurement. Use Table 401.21 (not the JMF) to convert the total weights recorded on the plant tickets to cubic yards.

401.22 Basis of Payment. Add the following: Include the cost of the placement and removal of asphalt wedges after either pavement planing or intermediate course paving under Item 448 – Asphalt Concrete Surface Course.

407 – TACK COAT

Uniformly apply a sufficient quantity of tack coat material prior to paving. Actual application rates of tack coat are set in the field. Include the payment for the work of Item 407 in the respective contract prices for the asphalt concrete intermediate and surface course items.

Allow the emulsified asphalt tack coat material to break prior to placing the asphalt overlay. Treat longitudinal construction joints using an application rate that will thoroughly coat the vertical face without running off.

In instances of severely raveled or disintegrated pavement upon completion of the planing work, do not apply 407 Tack Coat to the surface of the disintegrated pavement before placement of the intermediate course at the direction of the Engineer.

To mitigate tracking, the emulsified asphalt tack coat material must break prior to access by haul vehicles. The Contractor is responsible for removing any tack-coated aggregate that is tracked from the streets in this contract onto other streets or driveways.

TRACKLESS TACK COAT

A trackless tack coat, meeting the following requirements, will be used in this project:

Description. This work consists of preparing and treating a paved surface with a specialized anionic trackless asphalt emulsion. Meet all requirements of 407 Tack Coat except as noted herein. In instances of severely raveled or disintegrated pavement upon the completion of the planing work, do not apply Item Special – Trackless Tack Coat to the surface of the disintegrated pavement before placement of the intermediate course at the direction of the Engineer.

Material. Conform to the following typical physical properties:

Parameter	Test Method	MIN.	MAX.
Saybolt Furol Viscosity, SFS @ 25°C	ASTM D88	15	100
Storage Stability, 24 hrs, %	ASTM D244	--	1
Storage Stability, 5 days, %	ASTM D244	--	5
Residue by Distillation, %	ASTM D244	50	--
Oil Distillate, %	ASTM D244	--	1
Sieve Test, %	ASTM D244	--	0.3
Test on Residue:			
Penetration, @ 25°C	ASTM D5	--	20
Softening Point Range Deg C	ASTM D36	65	--
Solubility,%	ASTM D2042	97.5	--
Original Binder DSR@82°C			
G*/SIN δ,10 rad/sec	AASHTO T111	1	--

Note: Product should not contain filler such as clay, etc.

Equipment. See manufacture representative for correct distributor settings.

Weather Limitations. The trackless tack material is subject to damage if frozen.

Application of Asphalt Material. The trackless tack material is not compatible with cationic emulsions (CRS, CQS, CMS, CSS, etc.). All equipment should be thoroughly cleaned if cationic emulsion was previously present.

If product is to be stored for an extended period of time, the material should be agitated or gently circulated prior to use.

Nozzle spray pattern should be identical to one another along the distributor spray bar. The angle of the nozzle should be at a 15 to 30 degree angle to the spray bar axis to maximize overlap.

The trackless tack material should be applied at a rate of 0.04 to 0.08 gallons per square yard. The recommended application temperature range is 160°F to 180°F. Do not exceed 180°F.

Contact the manufacture representative for distributor settings and spray nozzles. The Engineer and manufacture representative will approve the rate of application and distributor settings before application of the tack coat.

Treat longitudinal construction joints using an application rate that will thoroughly coat the vertical face without running off.

In instances of severely raveled or disintegrated pavement upon completion of the planing work, do not apply tack coat to the surface of the disintegrated pavement before placement of the intermediate course at the direction of the Engineer.

The Contractor is responsible for removing any tack-coated aggregate and tack coat stains that are tracked from the streets in this contract onto other streets or driveways.

Basis of Payment. Include the payment for the work of this item in the respective contract prices for the asphalt concrete intermediate and surface course items.

ITEM 442 – ASPHALT CONCRETE SURFACE COURSE, 12.5 mm, Type A (448)
ITEM 448 – ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22
ITEM 448 – ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG64-28
ITEM 448 – ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG64-22

Place the following on **Daly Road** and **Galbraith Road**.

1.00" Item 448, Asphalt Concrete Intermediate Course, Type 1, PG64-28, Heavy Traffic

1.50” Item 442 – Asphalt Concrete Surface Course, 12.5 mm, Type A (lane ADTT greater than 4,000)

Place the following on **Archland Drive**, **Aspen Avenue**, **Aspen Way**, **Bahama Terrace**, **Baywood Lane**, **Bluebell Drive**, **Brushwood Avenue**, **Cary Avenue**, **Collegevue Place**, **Hawaiian Terrace**, **Heitzler Avenue**, **Lanius Lane**, **Larch Avenue and Springbrook Drive**.

1.00" Item 448 – Asphalt Concrete Intermediate Course, Type 1, PG64-22, Medium Traffic

1.00" Item 448 – Asphalt Concrete Surface Course, Type 1, PG64-22, Medium Traffic

448.04 Acceptance. Acceptance requirements have been modified in these Special Provisions to adjust for smaller quantity projects and assure each day of paving meets the design criteria of the Job Mix Formula (JMF). Except as modified in this provision, all other requirements of the ODOT 448 specification still apply.

Acceptance of all 448 asphalt will be based on the results of extraction and gradation tests performed by the City’s material testing consultant. The City’s testing consultant will obtain 4 samples for each day of paving in accordance with ODOT Supplement 1035. The City’s consultant will do extraction and gradation tests, in accordance with ODOT Supplement 1038 and 1039, for 2 of the samples, the other 2 will be hold samples. A Lot as used in 403.08 will be defined by the total cubic yards of asphalt placed for each specific pay item for each

JMF. Acceptance of a Lot will be based on the average of a minimum of 2 tests. If the results from the 2 samples indicate non-compliance with the approved JMF, the 2 hold samples will be tested for compliance. Acceptance of the Lot will then be based on the average of all 4 tests.

In additional to each Lot, each day of paving will be subject to the tolerance criteria shown in table 403.08-1 and 403.08-2. If the pay factor as determined by table 403.08-1 and 403.08-2 based on the 2 test results for a day's paving is less than 1.00, the 2 hold sample will be tested and the pay factor will be based on the average of the 4 tests results. If the pay factor for the 4 test results is less than 1.00, the pay factor will be applied to the quantity of asphalt placed that day and those test results and quantity will be excluded from the Lot. If the asphalt for that day is within the acceptable limits, the tests results will be used to determine the average for the Lot.

The Contractor is still required to perform all tests and submit reports per ODOT Item 448.

ASPHALT BINDER PRICE ADJUSTMENT

With the exception of Item 609 – Asphalt Concrete Curb, contract items specifying asphalt concrete more than 500 cubic yards are eligible for a price adjustment if the Ohio Department of Transportation's (ODOT) asphalt binder index shows the price for asphalt binders has increased or decreased in excess of 15% and the adjustment is more than $100 for any individual item. This is asphalt binder price adjustment is based on ODOT's PN 530 – 01/15/2010 – Asphalt Binder Price Adjustment for Single Year Project.

If the ratio of the Placing Index (PI) to the Bidding Index (BI) is greater than 1.15 or less than 0.85, the compensation the Contractor receives will be adjusted for work done each month under applicable contract items specifying asphalt concrete. ODOT's Placing Index and Bidding Index can be found at http://www.dot.state.oh.us/Divisions/ConstructionMgt/Admin/Indexes/Bit_Placing_Index_PN 530 and PN 535_07172009.doc. The adjustment will apply to the price for asphalt binder used in those contract items according to the following formula:

For a price increase:

PA = [(PI/BI) – 1.15] X C X Q

For a price decrease:

PA = [(PI/BI) – 0.85] X C X Q

Where:

PA = price adjustment
C = BI x percent virgin asphalt binder / 100
PI = Placing Index, the asphalt index for the month the asphalt concrete is placed
Q = quantity of asphalt concrete in tons
BI = Bidding Index, the asphalt index for the month the project is bid

The Asphalt Index is based on the data provided in the Poten & Partners, Inc., Asphalt Weekly Monitor® (http://www.poten.com/copyright.asp). ODOT will use the selling price for PG64-22 paving grade asphalt from the Midwest / Mid-continents Markets, Illinois / Michigan / Ohio / Indiana / Kentucky, for the Cleveland, Toledo, and Cincinnati areas. ODOT will average the three city areas low and high selling prices (6 numbers) as in effect on the last Wednesday of the month. Only the calculated average price will be published by ODOT. If the price is not available for any reason, then the Engineer's determination will be final.

The percent of virgin asphalt binder used to calculate "C" is determined from the approved Job Mix Formula (JMF).

The quantity of asphalt concrete items (Q) is the authorized constructed quantity in tons placed in the month being considered. If the contract item is in cubic yards, the volume will be converted into tons by multiplying the total installed in-place amount by a factor of 2.

If contract items specifying asphalt concrete are placed beyond an approved Contract Completion Date and liquidated damages are applied for completion of the contract, the price adjustments will be based on either the PI for the last month before liquidated damages were applicable or the PI for the actual month of placing, whichever is less.

Price adjustments will be calculated and applied at the end of each construction season and as soon as practical after completion of the project.

ITEM SPECIAL – ASPHALT SPEED HUMP

This work consists of installing asphalt speed humps on the following street(s):

Collegevue Place
Springbrook Drive

Install speed humps upon the completion of the surface course per the Pavement Marking Plans. The detail drawings for speed hump construction are included in **Appendix D** of these Special Provisions.

Stripe the speed humps immediately after they are constructed.

Construct speed humps with careful precision to exact specifications as to grade and height and conform to exact template dimensions.

Payment includes all labor, equipment, and materials necessary to complete the work, including wearing course removal, tack coat application, asphalt placement, and sealing the perimeter of each hump with 702.01 asphalt binder. The City will pay for accepted quantities at the contract price for Item Special – Asphalt Speed Hump (EA).

ITEM SPECIAL – ASPHALT REJUVENATING AGENT

Description. This work consists of preparing and treating newly paved asphalt roadway surfaces with an asphalt rejuvenating agent/in-depth sealer (RECLAMITE) and cover aggregate. The material must be a cationic rejuvenating agent that is spray-applied to the pavement. The asphalt rejuvenating agent must increase the ductility and penetration value of the asphalt binder in the pavement surface and seal the pavement in-depth to prevent the intrusion of air and water.

Apply rejuvenator as follows:

Street	From	To	Rejuvenate (Yes/No)
Archland Drive	Montevista Drive	North Terminus	YES
Aspen Avenue	North Bend Road	Heitzler Avenue	YES
Aspen Way	Heitzler Avenue	Heitzler Avenue	YES
Bahama Terrace	East Terminus	Colerain Avenue	YES
Baywood Lane	Hollywood Avenue	Corporation Line	YES
Bluebell Drive	East Terminus	Thornhill Avenue	YES
Brushwood Avenue	Daly Road	West Terminus	YES
Cary Avenue	Cedar Avenue	North Bend Road	YES
Collegevue Place	North Bend Road	North Terminus	YES
Daly Road	Corporation Line	Corporation Line	NO
Galbraith Road	Corporation Line	Corporation Line	NO
Hawaiian Terrace	East Terminus	Colerain Avenue	YES
Heitzler Avenue	Aspen Avenue	Aspen Avenue	YES
Lanius Lane	South Terminus	Hillcrest Road	YES
Larch Avenue	Hamilton Avenue	Belmont Avenue	YES
Springbrook Drive	Corporation Line	Daly Road	YES

Description. This work consists of preparing and treating existing asphalt concrete paved surfaces with an asphalt rejuvenating agent/in-depth sealer and cover aggregate in accordance with this specification.

Material. The asphalt rejuvenating agent must be an emulsion composed of a petroleum resin oil base uniformly emulsified with water meeting the following requirements:

Test Method Requirements

Tests	ASTM	AASHTO	Min.	Max.
Tests on Emulsion:				
Viscosity @ 25° C, SFS	D-244	T-59	15	40
Residue, % W (1)	D-244 (Mod.)	T-59 (Mod.)	60	65
Miscibility Test (2)	D-244 (Mod.)	T-59 (Mod.)	No Coagulation	
Sieve Test, % W (3)	D-244 (Mod.)	T-59 (Mod.)	-	0.1
Particle Charge Test	D-244	T-59	Positive	
% Light Transmittance	GB	GB	-	30
Tests on Residue from Distillation:				
Flash Point, COC, °C	D-92	T-48	196	-
Viscosity @ 60°C, cSt	D-445	-	100	200
Asphaltenes, %W	D-2006-70	-	-	1.00
Maltene Dist. Ratio	D-2006-70	-	0.3	0.6
$\frac{PC + A1}{S + A2}$ (4)				
PC/S Ratio (4)	D-2006-70	-	0.5	-

Saturated Hydrocarbons,S(4)	D-2006-70	-	21	28

1. ASTM D-244 Modified Evaporation Test for percent of residue is made by heating a 50 gram sample to 149°C (300°F) until foaming ceases, then cool immediately and calculate results.

2. Test procedure identical with ASTM D-244-60 except that .02 Normal Calcium Chloride solution shall be used in place of distilled water.

3. Test procedure identical with ASTM D-244 except that distilled water must be used in place of 2% sodium oleate solution.

4. Chemical composition by ASTM Method D-2006-70:

   PC = Polar Compounds A1 = First Acidaffins
   A2 = Second Acidaffins S = Saturated Hydrocarbons

The product "RECLAMITE" is acceptable for these requirements. The price quoted on the Bid Form must be based on the use of "RECLAMITE".

The cover aggregate must conform to 703.06 Sand Cover.

Equipment. Equipment must consist of adequate cleaning equipment, rejuvenator distributors, and sand spreading equipment.

Cleaning equipment must include (but not limited to) brooms, power blowers, and mechanical street sweepers if determined by the Engineer.

The distributor for spreading the emulsion must be self-propelled and have pneumatic tires. The distributor must be designed and equipped to distribute the asphalt rejuvenating agent uniformly on variable widths of surface at readily determined and controlled rates from 0.05 to 0.5 gallons per square yard of surface, and with an allowable variation from any specified rate not to exceed 5 percent of the specified rate.

Distributor equipment must include full circulation spray bars, pump tachometer, volume measuring device, and a hand hose attachment suitable for application of the emulsion manually to cover areas inaccessible to the distributor. The distributor must be equipped to circulate and agitate the emulsion within the tank.

Equip the sanding truck with a spreader that allows the sand to be uniformly distributed onto the pavement with the capability of applying 0.5 pound to 3 pounds of sand per square yard in a single pass. Keep sand off of driveways and tree lawns (sod spaces). The sand must be free flowing, without any leaves, dirt, stones, etc. Wet sand is not acceptable.

Preparation of Surface. Thoroughly clean and dry the surface of the pavement to the satisfaction of the Engineer before applying the asphalt rejuvenating agent.

Application of Asphalt Rejuvenating Agent. Apply the asphalt rejuvenating agent with a distributor truck at the temperature recommended by the manufacturer and at the pressure required for the proper distribution.

Uniformly apply the emulsion over the areas to be treated. Commence distribution with a running start to insure full rate of spread over the entire area to be treated. Use hand sprayer application to treat areas missed by the distributor truck.

Apply the asphalt rejuvenating agent only to dry surfaces and when it is not threatening to rain. Do not apply the asphalt rejuvenating agent when the ambient temperature is below 40° F.

To ensure proper coverage of the asphalt rejuvenating agent, do not apply the material in windy conditions as determined by the Engineer.

Apply asphalt rejuvenating agent to one-half width of the pavement at a time. When treating the second half of the surface, overlap the previous application along the centerline construction joint by at least 3 inches.

Before application, blend the asphalt rejuvenating agent with water at the rate of two (2) parts rejuvenating agent to one (1) part water, by volume, or as specified by the manufacturer. Spread the combined mixture of asphalt rejuvenating agent and water at the rate of 0.05 to 0.10 gallons per square yard, or as approved by the Engineer following field-testing. Perform field-testing on a selected street or streets at the beginning of the project to determine the appropriate application rate. An application rate of 0.06 to 0.07 gallons per square yard is anticipated with the streets contained in this contract.

Apply succeeding applications (if necessary) as soon as penetration of the preceding application has been completed and approval is granted for additional applications by the Engineer.

Should grades or super elevations of surfaces cause excessive runoff, apply the required amounts in two or more applications as directed by the Engineer.

After the street has been treated, apply an additional treatment to the area within one foot of the curb line on both sides of the road. Apply said treatment uniformly by a method acceptable to the Engineer.

Handling of Asphalt Rejuvenating Agent. Circulate contents in tank cars or storage tanks at least forty-five minutes before withdrawing any material for application. When loading the distributor, load the asphalt rejuvenating agent concentrate first and then add the required amount of water. Add the water into the distributor with enough force to cause agitation and thorough mixing of the two materials. To prevent foaming, keep the discharge end of the water hose or pipe below the surface of the material in the distributor.

The distributor truck tanks must be cleaned to the satisfaction of the Engineer.

Application of Cover Aggregate. After the rejuvenating emulsion has penetrated the surface of the pavement, apply a coating of dry sand to the pavement in sufficient amount to protect the traveling public as required by the Engineer. Cover aggregate is included in the bid price for Item Special – Asphalt Rejuvenating Agent.

Remove all sand no later than 48 hours after treatment of the street via hand and mechanical sweeping to the satisfaction of the Engineer. Street sweeping is included in the price bid for Item Special – Asphalt Rejuvenating Agent.

Should the Engineer determine that a hazardous condition exists on the roadway after the sand is swept, apply additional sand and sweep same no later than 24 hours following reapplication. No additional compensation to be paid for reapplication and removal of sand.

Material and Pavement Testing. Furnish a quality inspection report showing the source, manufacturer, and the date shipped, for each load of asphalt rejuvenating agent. Provide representative samples of material for testing, if so directed by the Engineer.

The City may obtain pavement samples to be tested by its testing agency in order to verify that the asphalt rejuvenating agent is satisfactorily decreasing the viscosity and increasing the penetration value of the asphalt binder as follows:

A. The viscosity shall be reduced by a minimum of 45%.
B. The penetration value shall be increased by a minimum of 25%.

Test data will be performed on extracted asphalt cement from a pavement to a depth of 3/8 inch.

Certification: Submit a certified statement with the bid from the asphalt rejuvenating manufacturer showing that the asphalt rejuvenating emulsion conforms to the physical and chemical requirements indicated under Item Special – Asphalt Rejuvenating Agent in these Special Provisions.

Resident Notification: Adhere to the provisions of 107.22 – Notification to Affected Parties in the City Supplement to the ODOT Construction & Material Specifications, with the following exception: provide notice at least 24 hours (not 48) prior to the treatment of the pavement.

Distribute, by hand, a typed notice to all residences and businesses on the street to be treated. The notice will have a local phone number that residents may call to ask questions. The notice must be of the door hanger type, which secures to the door handle of each dwelling. Unsecured notices will not be allowed. Place the notices on the windshields of any parked cars on the street. No payment will be made for distribution of this notice. This work is considered incidental to the contract.

Leaf Removal: Depending on the timing of the project, it may be necessary to remove downed leaves from the pavement before treatment with the asphalt rejuvenating agent. The Contractor must remove and properly dispose of fallen leaves. Blowing leaves onto the sod space, sidewalk area, or private property is not permitted. No payment will be made for this work. Include the cost of this work in Item Special – Asphalt Rejuvenating Agent.

Work on Structures: This project may contain structures which have concrete decks or overlays. Do not apply the asphalt rejuvenating agent to the concrete portions of these structures.

Maintaining Traffic: The Contractor is permitted to use traffic cones (per OMUTCD) for traffic control purposes. Adhere to the following requirements:

A. Keep treated portions of the pavement surfaces closed and free from traffic until penetration has become complete, and the area is suitable for traffic.
B. Apply asphalt rejuvenating agent to one lane at a time when traffic must be maintained at all times on a particular street. Maintain traffic in the untreated lane until the traffic can be switched to the completed lane.
C. Provide "FRESH OIL" signs (sign designation W21-2 in the Ohio Manual of Uniform Traffic Control Devices, current edition) at the beginning and end of each street being treated with the asphalt rejuvenating agent and at all side streets for the duration of the work for a given street. Signs may be displayed with portable sign supports.
D. Rejuvenation work will not be permitted on October 31 (Halloween).

Include the cost of maintaining traffic for the pavement rejuvenation work in the price bid for this Item Special.

Contractor Experience: The asphalt rejuvenating agent must be applied by an experienced applicator of such material. The Contractor must have a minimum of three years experience in applying the specified product.

Method of Measurement. The quantities of the asphalt rejuvenating agent will be measured by the square yard of treated pavement.

Basis of Payment. Payment includes all labor, equipment, and materials necessary to complete the work as described herein. Payment for accepted quantities will be paid for at the contract unit price for Item Special – Asphalt Rejuvenating Agent (SY).

ITEM 452 – 11" NON-REINFORCED CONCRETE PAVEMENT

The requirements of 451 apply, except for the following:

Delete paragraph 451.03 Pavement Quality Control.

Delete paragraphs from 451.09.B. that reference Slip Form Paver with Mechanical Dowel Bar Inserter.

This work consists of replacing existing pavement at various bus stops or intersection approaches with new concrete pads, typically measuring 10 feet wide (as measured from the back of the P-1 Curb) by 80 feet in length, or as directed by the Engineer. Install exposed concrete pavement on the following street(s) as directed by the Engineer:

Daly Road
Galbraith Road

Use Class QC MS concrete in accordance with the provisions of 499 for the new concrete pavement.

Sawcut the existing pavement and remove to the limits as established by the Engineer. Pay for the sawcutting and pavement removal under either Item 202 – Pavement Removed (for rigid pavements) or Item 203 – Excavation (for flexible base pavements). Compact subgrade in accordance with 204 – Subgrade Compaction. Include the cost of subgrade compaction in the unit cost for this item.

For Concrete Pad Installation in Rigid Pavements:

Space the expansion and contraction joints to align with existing joints on the adjacent concrete base pavement. Adhere to the requirements of ODOT Standard Drawing BP-2.2, Transverse Pavement Joints (see **Appendix D**). Seal all joints. Tie new concrete pavement with the existing pavement via the following:

Longitudinally: Install tie bars or hook bolts in the existing concrete pavement per ODOT standard Drawing BP-2.1 (see **Appendix D**).

Transversely: Install dowels in the existing concrete pavement per ODOT Standard Drawing BP-2.2 (see **Appendix D**).

The Engineer may waive the tie-in requirements should the existing concrete pavement not support the drilling operation for the dowels or tie bars/hook bolts.

For Concrete Pad Installation in Flexible Base Pavements:

Adhere to the requirements of ODOT Standard Drawing BP-2.2 (see **Appendix D**) for joint construction and dowel placement in the new concrete pavement. Seal all joints.

The Contractor must adhere to the Concrete Jointing Detail Drawing in **Appendix D**.

Install new integral concrete curb with the pavement. Curb paid separately under Item 609 – Concrete Curb Integral with Concrete Pavement, Type P-1.

Seal the new/existing pavement interface with a 702.01 asphalt binder material.

Payment is full compensation for furnishing all materials, shaping and compacting the exposed underlying material, placing new pavement, sealing the perimeter of the concrete pad, and for all labor, equipment, and incidentals necessary to complete this work.

ITEM 602 - BRICK MASONRY, MANHOLE REPAIR

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

Adhere to the provisions of "Item 602 – Masonry", in the City Supplement.

This work consists of removing and replacing deteriorated or failed portions of manhole and inlet chambers not paid for under other items in this contract.

ITEM 608 – 5" CONCRETE WALK

Perform work in accordance with the latest version of the City's Sidewalk Manual. Payment for this item includes the removal of the existing walk.

Per City Supplement, saw and trim the existing sidewalk to a neat line wherever the proposed concrete sidewalk adjoins or abuts an existing sidewalk.

Backfill the disturbed areas adjacent to new walk with topsoil and seed. Include the cost of this work in the price of Item 608 – Concrete Walk.

The Contractor is encouraged to document areas of damaged sidewalk prior to the start of construction work in order to help resolve possible damage claims by residents against the Contractor. No payment will be made for this work.

ITEM 608 – CURB RAMP
ITEM 608 – DETECTABLE WARNING, TYPE F
ITEM 609 – CONCRETE CURB, TYPE L-1, CURB RAMP (Accession No. 21430 & 27256)

Adhere to Item 608 of the City Supplement and the pertinent Curb Ramp Standard Drawings, Accession No. 27256, which are included in **Appendix E** along with the curb ramp maps. Payment for Item 608 – Curb Ramp includes the removal of the existing walk, the concrete for the sloped ramp, the labor required to form the ramp and the restoration of the areas adjacent to the curb ramp. Proposed curb ramp type and exact location to be determined in the field at the direction of the Engineer.

The curb ramps at the following intersections will be completed as part of this project.

Archland Drive at Kirkland Drive
Bahama Terrace at East Terminus
Brushwood Avenue at Daly Road
Brushwood Avenue at Granville Lane
Brushwood Avenue at Bobolink Drive
Cary Avenue at Elkton Place
Daly Road at Hollywood Avenue and Springbrook Drive
Daly Road at Galbraith Road
Galbraith Road at Four Worlds Drive
Galbraith Road at Bobolink Drive
Heitzler Avenue at Sidewalk Terminus

Additional curb ramp locations may be added as directed by the Engineer. A complete compilation of the curb ramps located within the work limits is provided in Appendix E for the Contractor's reference.

608.071 Detectable Warning Strip.

The following Type F Detectable Warning products are approved for use:

Manufacturer	Product	Address/Phone	Color
Access Products Inc.	Access Tile – 24" x 48" Cast-in-Place Replaceable (polymer composite)	241 Main Street, Suite 100 Buffalo, NY 14203 1-888-679-4022 or 1-347-278-7729 www.accesstile.com/products	Brick Red (RD) FED 22144 / RAL 3016
ADA Solutions, Inc.	24" x 48" Cast-in-Place Tactile / Detectable Warning Surface Tiles (glass, carbon and fiberglass composite)	P.O. Box 3 North Billerica, MA 01862 1-800-372-0519 www.adatile.com	Brick Red (Federal Color No. 20109)
ADA Solutions, Inc.	24" x 48" Cast-in-Place Replaceable Tactile / Detectable Warning Surface Tiles (glass, carbon and fiberglass composite)	P.O. Box 3 North Billerica, MA 01862 1-800-372-0519 www.adatile.com	Brick Red (Federal Color No. 20109)
Alerttile	Alertcast – 24" x 48" Cast-in-Place (Replaceable) Detectable Warning System (glass-reinforced thermoset composite)	215 South Water Street, Suite 103 Wilmington, NC 28401 1-877-232-6287 www.alerttile.com	Brick Red (Federal Color No. 22144)
Armorcast	24" x 48" Detectable Warning Panel Wet Set / Replaceable (polymer concrete)	13230 Saticoy Street North Hollywood, CA 91605 1-818-982-3600 www.armorcastprod.com	Brick Red
Engineered Plastics Inc.	Armor-Tile – Herculite Series – 24" x 48" Cast-in-Place Detectable / Tactile Warning Surface (vitrified polymer composite)	300 International Drive, Suite 100 Williamsville, NY 14221 1-800-682-2525 www.armor-tile.com	Brick Red (Federal Color No. 22144)
Engineered Plastics Inc.	Armor-Tile – 24" x 48" Cast-in-Place Detectable / Tactile Warning Surface (vitrified	300 International Drive, Suite 100 Williamsville, NY 14221	Brick Red (Federal Color No. 22144)

	polymer composite)	1-800-682-2525 www.armor-tile.com	

Or approved equal.

Use Item 609 – Concrete Curb, Type L-1 – Curb Ramp in conjunction with curb ramp construction. Adhere to the pertinent requirements of Item 609 of these Special Provisions.

Upon completion of the surface course paving, the maximum allowable vertical offset where the curb ramp meets the new pavement is 1/4 inch. Remove and replace curb ramps exceeding the 1/4-inch maximum offset at the Contractor's expense.

Do not place tack along the curb/pavement interface within the limits of the curb ramps.

ITEM 609 – ASPHALTIC CONCRETE CURB, TYPE A-1 (Accession No. 21429)
ITEM 609 – CONCRETE CURB, TYPE L-1 (Accession No. 21430)
ITEM 609 – CONCRETE CURB INTEGRAL WITH CONCRETE PAVEMENT, TYPE P-1 (Accession No. 21432)
ITEM 609 – CONCRETE COMBINED CURB & GUTTER, TYPE P-4 (Accession No. 21433)
ITEM 609 – CONCRETE CURB REPAIR, TYPE P-5
ITEM 609 – CONCRETE CURB REPAIR, TYPE R-5 (Exposed Gutter Plate)
ITEM 609 – CONCRETE CURB REPAIR, TYPE R-5

This work consists of removing and disposing various types of deteriorated curbs and the repair or replacement of these curbs in accordance with the pertinent City Standard Drawings (see Accession No.'s above) and the detail drawings in **Appendix D** these Special Provisions. The location and extent of curb repair will be determined by the Engineer prior to the start of the work of this contract.

Replace removed curb within two working days. After excavation, place necessary barricades over the cuts to protect the public.

Match the height of new curb with the grade of the existing sod space as best as possible. The height of the new curb must not be greater than the elevation of the existing sidewalk.

Confine operations to one side of the street at a time and do not restrict parking on both sides of the street.

Type L-1 Curb, when used with curb ramp installation, will be paid under Item 609 – Concrete Curb, Type L-1, Curb Ramp. Besides curb ramps, only use L-1 curb for driveway construction when encountering drives with high ingress/egress traffic volumes as directed by the Engineer.

Where a void is left between the new curb and the adjacent pavement, fill the void with concrete and finish flush with the top of the intermediate course. No additional payment will be made for this work.

Saw cut all sections of curb marked for removal on both ends to form a vertical joint in the remaining curb. Install 1/2 inch expansion paper to act as a bond breaker and permit proper expansion and contraction, including both sides of storm inlets. Use a 5.5 inch backform on all concrete curb repairs.

It may be necessary to grind the pavement at the interface of the new curb to provide a smooth transition into the gutter plate for final paving. Include the cost of this work in the price bid for the pertinent curb repair work.

Backfill the disturbed area behind the curb with topsoil meeting the requirements of 653 – Topsoil Furnished and Placed. Provide a topsoil sample to the Engineer for approval before placement. Topsoil must be shredded. Properly compact the topsoil after it is placed with a hand tamp or vibratory plate compactor to the satisfaction of the Engineer. Should noticeable settlement of the topsoil occur during the project, place additional topsoil to restore the settled area to the proper grade. No extra compensation to be paid to the Contractor for this work.

Where the Engineer directs the Contractor to increase the height of the new curb by 2 inches or more above the existing curb height, place additional topsoil as necessary to backfill the disturbed area along the back of curb. The City will pay for the additional topsoil at the contract price for Item 653 – Topsoil Furnished and Placed.

Restore the grass area behind the curb via hydroseeding.

Basis of Payment. Add the following: The contract price includes the cost of removing the existing curb. Completed curb will be paid at 80%. The remaining 20% will be paid upon the completion of the backfill and hydroseeding work. Payment of curb does not include measurement through CI's or similar structures.

HYDROSEEDING RESTORATION REQUIREMENTS

Wherever adjacent grass areas are disturbed by the removal and installation of curb, driveway, sidewalk, curb ramps, etc., restore the affected areas to their original grade by the use of topsoil, then hydroseed with a mixture of mulch, tackifier, grass seed, fertilizer, wetting agents, and water to establish an erosion control blanket. The following specifications apply:

1. Use a grass seed mixture consisting of 70% turf-type tall fescue, 20% perennial rye, and 10% Kentucky bluegrass applied at a rate of 8 pounds per 1,000 square feet.

2. Use a 15-30-15 starter-type fertilizer or equivalent applied at a rate of 300 pounds per acre (6.9 pounds per 1,000 square feet).

3. Use only 100% wood fiber mulch, factory-tinted green in color, applied at a minimum rate of 2,000 pounds per acre (45.9 pounds per 1,000 square feet), including a tackifier. During hot and dry weather, generally from May 15 through September 15, include a wetting agent, "Applegate ProTurf" or approved equal, in the mixture at recommended rates. Use "Applegate Wood-Lok with Tac" mulch or approved equal, which is generally available in 50 pound bags. No field added dye nor reprocessed wood fibers will be permitted.

4. Mulch, tackifier, grass seed, fertilizer, and water mixture must be hose-applied using mechanically agitated equipment, not a jet spray agitated machine. Shoot mixture downward from the hose onto the soil, not broadcast from a tower spray nozzle over a wide area eliminating over sprays. Cover 100% of the soil with the hydroseeding mixture.

Within six calendar days after concrete curb, sidewalk, or driveway is placed, remove all forms, backfill with topsoil, and apply hydroseeding. If the topsoil/hydroseeding operation is not completed within the six day period, liquidated damages will be assessed at the rate of $100 per day per street. The Contractor is encouraged to employ a professional landscaping firm familiar with hydroseeding operations to assure quality placement. The Contractor must clean up any over-spray of the hydroseeding operation to the satisfaction of the Engineer. Include the cost of the topsoil and hydroseeding in the price of the pertinent curb repair, sidewalk, or driveway replacement item.

Adhere to the watering requirements of 659.17.

The establishment of new grass is subject to the one-year correction and repair period inspection.

ITEM 609 – CONCRETE WALK CURB

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

This work consists of construction of concrete curb integral with concrete sidewalk at curb ramp locations (Type RW-1 and W-1). Perform work in accordance with the latest version of the City of Cincinnati Curb Ramp Design Guide, which includes the Curb Ramp Standard Drawings, Accession No. 27256, and the pertinent provisions of 609 Concrete Curb of these Special Provisions.

The measurement for Walk Curb is the actual number of linear feet of curb.

ITEM 611 – 12" CONDUIT, TYPE B

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

Adhere to the provisions of "Item 611 – Pipe Culverts, Sewers and Drains" in the City Supplement.

This work consists of any extensions or replacement of existing inlet connections or new inlet connections in conjunction with the work of this contract.

Backfill all conduit trenches with Controlled Low Strength Material – Controlled Density Fill (CLSM-CDF) to a point measuring 11 inches below the surface of the intermediate course. Refer to the latest version of the "Approved HAM-CIN CLSM-CDF Producers and Mixes List" on file with the Department of Transportation & Engineering.

Include pavement restoration with 441 Type 1 hot-mix asphalt in the price bid for this item. New pavement must meet the compaction requirements of 252.04 of these Special Provisions.

Payment includes existing pipe removal as required by the associated inlet work.

ITEM 611 – 12" CONDUIT, TYPE B, AS PER PLAN

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

Adhere to the provisions of "Item 611 – Pipe Culverts, Sewers and Drains" in the City Supplement.

This work consists of replacement of existing pipe crossings or installation of new pipe crossings within the public right of way to a maximum depth of 10 feet in conjunction with the work of this contract.

Backfill all conduit trenches with Controlled Low Strength Material – Controlled Density Fill (CLSM-CDF) to a point measuring 11 inches below the surface of the intermediate course. Refer to the latest version of the "Approved HAM-CIN CLSM-CDF Producers and Mixes List" on file with the Department of Transportation & Engineering.

Include pavement restoration with 441 Type 1 hot-mix asphalt in the price bid for this item. New pavement must meet the compaction requirements of 252.04 of these Special Provisions.

Payment includes sawcutting pavement, pavement removal, trench excavation, pipe removal and disposal, installation of new pipe crossing, backfill with CLSM-CDF and pavement restoration as required.

ITEM 611 – 3" CONDUIT, TYPE G

This work consists of any extensions or replacements of existing downspout outlets required in conjunction with the work of this contract using 3" cast iron (707.18) or 3" ductile iron (707.20) pipe.

Adhere to the provisions of "Item 611 – Pipe Culverts, Sewers and Drains" in the City Supplement. Perform work in accordance with City Standard Drawing Accession No. 20622.

If required, pay for sidewalk, curb, and driveway work under the appropriate 608, 609 or 627 items, respectively.

ITEM 611 – MANHOLE ADJUSTED TO GRADE
ITEM 1111 – VALVE CHAMBER ADJUSTED TO GRADE

This work consists of adjusting manholes and valve chambers to grade using precast concrete shim rings, brick and mortar, or mortar only adjustments. If necessary, these items also include minor repairs to the top sections of manhole and valve chamber domes. The repairs are limited to the top 6 inches of the dome as measured below the casting.

For sanitary, storm, and combined sewer manholes, in lieu of concrete shim rings, the use of the following products is permitted:

1. Injection molded high density polyethylene (HDPE) adjustment rings as manufactured by Ladtech, Inc. The HDPE adjustment rings must be manufactured from polyethylene plastic as identified in ASTM Designation D-1248 (Standard Specification for Polyethylene Plastic Molding and Extrusion Materials). The adjustment rings must be tested to assure compliance with impact and loading requirements per the ASSHTO Standard Specification for Highway Bridges. The maximum height adjustment with the HDPE rings is 6 inches.

   Install per manufacture's recommendations and per the following:
   For the HDPE adjusting ring installation, all concrete and metal surfaces must be clean of sand grit and loose rust. Between all HDPE plastic rings, concrete, and metal surfaces, spread a 3/8-inch continuous seal of Sikaflex 11FC or approved equal to each surface in contact with the rings. The Contractor must ensure that the seal between the cone, rings, and the metal casting have a continuous bead of sealant to ensure a complete and waterproof seal. Utilize a molded and indexed slope ring for all adjustments for matching sloped or crowned road grade.

   All HDPE adjusting rings must be covered by a manufacture's five year warranty.

2. Infra-Riser® rubber composite riser rings as manufactured by East Jordan Iron Works. These rings must be installed per all manufacture's recommendations, including the use of a joint sealer. Place the ring just below the casting. Do not stack more than two rings high. The rings must not exceed a total height of 3 inches.

   Adhere to the pertinent provisions of Item 1111 – Water Works Chambers of the City Supplement, and the requirements of the following Greater Cincinnati Water Works (GCWW) publication: "Rules and Regulations of the GCWW", current edition.

For adjustment of sewer manholes, refer to Manhole Adjustment detailed drawing in **Appendix D**.

Casting Adjustment Requirements:

1. Perform utility casting adjustments after the placement of the intermediate (leveling) course of asphalt pavement or after planing the surface course if no intermediate course is stipulated.

2. Sawcut a square area of pavement full depth around the casting a minimum of two feet beyond the edge of the casting to accommodate suitable mechanical compaction equipment.

3. Adjust castings to the proper height using precast concrete shims. Brick and mortar adjustments are only possible with permission of the Engineer.

4. After the casting has been adjusted to grade, restore the entire void in the pavement by tacking around the perimeter of the casting and sawcut edges and filling the opening around the casting with compacted Item 301 – Asphalt Concrete Base. The maximum compacted depth of any one layer of the 301 material for these adjustments is 4 inches. Compact the final lift of 301 base flush with the surface of the intermediate course or the planed surface if no intermediate course is used. The minimum depth of 301 material is 12 inches.

5. The use of dry mix concrete to fill the void around the casting is not permitted.

6. Upon completion of the adjustment work, immediately place a compacted 448 Type 1 hot-mix asphalt wedge around the raised casting. For castings exposed up to one inch, place a wedge with a minimum diameter of four feet around the casting. For castings exposed greater than one inch, place a wedge with a minimum diameter of six feet around the casting. Asphalt wedges must extend up to and be flush with the top of the casting. Install wedges by the end of the workday in which the casting is raised.

   Remove wedges immediately prior to machine paving. The cost of wedging castings is included in the price bid for Item 448 – Asphalt Concrete Surface Course.

   Replace square sewer manhole castings with round manhole castings. The Metropolitan Sewer District (MSD) will furnish these and other castings broken and/or needing replacement due to no fault of the Contractor. Pick-up of these items (and the return of salvaged castings) at the MSD-WWC Facility, located at 225 West Galbraith Road, is the responsibility of the Contractor. Include the cost of hauling castings in the contract price for this item.

ITEM 611 – MANHOLE REPAIRED AND ADJUSTED TO GRADE
ITEM 1111 – VALVE CHAMBER REPAIRED AND ADJUSTED TO GRADE

This project includes an estimated quantity of these contingency items for use as directed by the Engineer.

This work consists of repairing the upper sections of manhole and valve chamber domes and adjusting the castings to grade using precast concrete shims. See 611 – Manhole Adjusted to Grade for the use of injection molded high density polyethylene (HDPE) adjustment rings as manufactured by Ladtech, Inc. and Infra-Riser® rubber composite riser rings to adjust sanitary, storm, and combined manholes. The scope of repairs extends from a length greater than 6 inches below the casting to 18 inches below the casting.

Manhole repairs below the 18-inch mark will be paid by Item 602 – Brick Masonry, Manhole Repairs.

Adhere to the requirements of Item 611 – Manholes/Valve Chambers Adjusted to Grade in these Special Provisions.

Adhere to the pertinent provisions of Item 1111 – Water Works Chambers of the City Supplement, and the requirements of the following Greater Cincinnati Water Works (GCWW) publication: "Rules and Regulations of the GCWW", current edition.

ITEM 611 – INLET ADJUSTED TO GRADE

This work consists of adjusting single gutter inlet (SGI), double gutter inlet (DGI), combination type inlet (CI), old style curb inlet (3 foot or 5 foot straight-front inlets), or ditch inlet (DI) castings and lids to grade.

Sawcut the pavement full depth around the perimeter of the inlet. Raise frame with a combination of bricks and mortar to desired height, and reset grate. Replacement of old style grates will be paid under Item 611 – Inlet Grate.

Adjust the lid of DI and old style curb inlets to grade using a combination of bricks and mortar to the desired height.

Should adjustment of these castings require the removal and restoration of curbing adjacent to the inlet, pay for such work under the appropriate curb repair item.

Broken or damaged inlet frames will be replaced by the Contractor and paid out of the Contract Contingency.

ITEM 611 – INLET REPAIRED AND ADJUSTED TO GRADE

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

This work consists of removing and replacing deteriorated or failed portions of single gutter inlet (SGI), double gutter inlet (DGI), combination type inlet (CI), old style curb inlet (3 foot or 5 foot straight-front inlets), or ditch inlet (DI) chambers, filling voids adjacent to the chambers (if necessary), and adjusting the inlet castings and lids to grade where necessary.

For inlet adjustments, sawcut the pavement full depth around the perimeter of the inlet. Raise frame with a combination of bricks and mortar to desired height, and reset the grate. Replacement of old style grates will be paid under Item 611 – Inlet Grate.

Adjust the lid of DI and old style curb inlets to grade using a combination of bricks and mortar to the desired height.

If necessary, fill voids with Controlled Low Strength Material – Controlled Density Fill (CLSM-CDF). Refer to the latest version of the "Approved HAM-CIN CLSM-CDF Producers and Mixes List" on file with the Department of Transportation & Engineering.

Extent of repair to each inlet chamber is limited to a volume of four (4) cubic feet of masonry beyond the adjustment to grade. Pay for any repair work in excess of 4 cubic feet beyond the adjustment to grade under Item 602 – Brick Masonry.

Should adjustment of these castings require the removal and restoration of curbing adjacent to the inlet, pay for such work under the appropriate curb repair item.

Broken or damaged inlet frames will be replaced by the Contractor and paid out of the Contract Contingency.

ITEM 611 – CONSTRUCTION OF DOUBLE GUTTER OR COMBINATION INLET AND ABANDONING OLD STYLE CURB INLET

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

This work consists of converting old style curb inlets to either double gutter inlets (DGI) or combination inlets (CI). Items of work include the following: removing the existing inlet castings and delivering them to the SMU facility located at 225 West Galbraith Road; removing the existing inlet structure; constructing the new inlet chamber in accordance with City Standard Drawings Accession No. 49013 or 49016 as appropriate; backfilling any remaining cavities; modifying the existing inlet connections as necessary; restoring the pavement; and furnishing and setting new inlet castings (both frames and grates).

If necessary, fill voids with Controlled Low Strength Material – Controlled Density Fill (CLSM-CDF). Refer to the latest version of the "Approved HAM-CIN CLSM-CDF Producers and Mixes List" on file with the Department of Transportation & Engineering.

Furnish new castings required for this work, which meet the requirements City Standard Drawings Accession No's. 49014 or 49017 as appropriate.

Sawcut the pavement full depth around the perimeter of the inlet and the curb before removing existing inlet.

Any necessary extensions or replacement of existing inlet connections will be paid for under ***Item 611 – 12" Conduit, Type B***.

Perform work in accordance with the pertinent provisions of Items 202 and 611.

Include the necessary pavement restoration in the contract price for this item. Restore all pavements in kind as directed by the Engineer. Pay for sidewalk, driveway, and curb restoration under the appropriate 608, 627, or 609 items, respectively. Include the cost of the sod space restoration via hydroseeding in the contract price for this item.

ITEM 611 – CONSTRUCTION OF NEW DOUBLE GUTTER INLET (DGI) OR NEW COMBINATION INLET (CI)

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

This work consists of excavating and installing a new double gutter inlet (DGI) or combination inlet (CI). Items of work include the following: sawcutting the pavement full depth around the perimeter of the inlet and curb to be constructed; excavating; constructing a new inlet chamber in accordance with City Standard Drawings Accession No. 49013 or 49016 as appropriate; backfilling any remaining cavities; constructing new inlet connections as necessary; restoring the pavement; and furnishing and setting new inlet castings (both frames and grates).

If necessary, fill voids with Controlled Low Strength Material – Controlled Density Fill (CLSM-CDF). Refer to the latest version of the "Approved HAM-CIN CLSM-CDF Producers and Mixes List" on file with the Department of Transportation & Engineering.

Furnish new castings required for this work, which meet the requirements City Standard Drawings Accession No's. 49014 or 49017 as appropriate.

Pay for any necessary connections under Item 611 – 12" Conduit, Type B.

Perform work in accordance with the pertinent provisions of Items 202 and 611.

Include the necessary pavement restoration in the contract price for this item. Restore all pavements in kind as directed by the Engineer. Pay for sidewalk, driveway, and curb restoration under the appropriate 608, 627, or 609 items, respectively. Include the cost of the sod space restoration via hydroseeding in the contract price for this item.

ITEM 611 – INLET RECONSTRUCTED TO GRADE

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

This work consists of reconstructing damaged single gutter inlets (SGI), double gutter inlets (DGI) or combination inlets (CI). Items of work include the following: removing the existing inlet castings; completely removing the existing inlet structure; constructing the new inlet chamber in accordance with City Standard Drawings Accession No. 49011, 49013 or 49016 as appropriate; backfilling any remaining cavities; modifying the existing inlet connections as necessary; replacing the inlet castings (both frames and grates); and restoring the pavement. ***New inlet castings (frames and/or grates) will be provided by the City if the City deems the old inlet castings to be unsuitable for reuse.***

If necessary, fill voids with Controlled Low Strength Material – Controlled Density Fill (CLSM-CDF). Refer to the latest version of the "Approved HAM-CIN CLSM-CDF Producers and Mixes List" on file with the Department of Transportation & Engineering.

Sawcut the pavement full depth around the perimeter of the inlet and the curb before removing existing inlet.

Any necessary extensions or replacement of existing inlet connections will be paid for under ***Item 611 – 12" Conduit, Type B***.

Perform work in accordance with the pertinent provisions of Items 202 and 611.

Include the necessary pavement restoration in the contract price for this item. Restore all pavements in kind as directed by the Engineer. Pay for sidewalk, driveway, and curb restoration under the appropriate 608, 627, or 609 items, respectively. Include the cost of the sod space restoration via hydroseeding in the contract price for this item.

ITEM 611 – INLET GRATES

This work consists of removing and disposing old style inlet grates and furnishing and installing new diagonal grates on various type inlet castings in accordance with City Standard Drawing Accession No. 49014.

ITEM 614 – MAINTAINING TRAFFIC

Due to the difficulty of obtaining the proper amount of "No Parking" signs at the Cincinnati Police Department District offices, the Contractor will be required to print identical copies of this sign for use with the project. The cost of printing and placing these signs will be included in the cost of 614-Maintaining Traffic.

614.04 Work Zone Marking Signs

Install 25 MPH Advisory Speed signs and "Caution Raised Manholes" signs (see **Appendix F**) with all "Construction Ahead/Road Work Ahead" signs at the limits of the streets in this project.

614.08 Flaggers

When flagging is necessary, use approved stop/slow paddles. Flags should be limited to emergency situations, intersections, and low speed low volume locations which can best be controlled by a single flagger. The flagging operation and flagging station must conform to the Ohio Manual part 6E, "Flagger Control". The Contractor must provide dedicated flaggers for traffic control purposes. Flaggers must be present for all grinding and paving operations and have no other duties.

The following restrictions on local roadways will apply to the construction involved in this project:

The Contractor must perform the required work with the maximum safety of, and the least inconvenience to, the traveling public and the contractor. The Engineer must approve any proposed variance from the Maintenance of Traffic notes, in advance, in writing. Except as modified herein, the requirements for maintaining traffic, as indicated in the "State of Ohio Department of Transportation Construction and Material Specification", Item 614; "The Ohio Manual Of Uniform Traffic Control Devices" (OMUTCD), Part 6; and the City of Cincinnati "Traffic Safety Handbook" (Blue Book) current editions, latest revisions and pertinent items of specifications and proposal shall apply.

Use drums, signs, sign supports, barricades, impact attenuators and other traffic control devices that are certified to meet NCHRP350 safe-crash standards or are modified by contract documents. Do not use heavy, non-yielding devices or supports that do not conform to the current standards of NCHRP350 unless allowed by contract documents.

614.03 Traffic Control General

All traffic control shall conform to the requirements of the plan, standard construction drawings shown on the plan, and the OMUTCD for streets and highways, for the installation, maintenance, and operation of all traffic controls and traffic control devices. When the plans or standard construction drawings do not cover a specific traffic control situation, place the necessary traffic control devices according to the OMUTCD and use the procedures required by the OMUTCD.

1. In addition to Item 614, "Maintaining Traffic," as set forth in the State of Ohio Department of Transportation Construction and Material Specifications, the following notes apply to the work carried out within the limits of this project.

    a. The Contractor is required to furnish, erect, maintain and subsequently remove all lights, signs, barricades and all other traffic control devices necessary for the safety and maintenance of traffic. This includes all advance warning signage, regulatory signs, informational signs, detour signs and directional signs. Keep all equipment clean and in proper working condition. All signs shall be retroreflectorized or illuminated and of the most recent color and type as specified in the OMUTCD manual.

b. Replace any traffic control device that becomes moved or damaged during the duration of the project. Assign a competent person to check the work zone on a daily basis and correct any deficiencies. Make these checks before work is to start for the day to assure all devices are in place or, if not needed, are covered or removed from the site. If the contractor is not working and no roadway hazards are present, cover or remove from the site any unnecessary signs.

c. The standard channelizing device for closing any lane to traffic is properly weighted 36" drums or 42" cones. Tapers for lane closures have 36" drums or 42" cones. 28" cones may be used for **daytime only**, short duration closures. All channelizing devices are orange in color with a minimum of two retroreflective bands (42" cones have a minimum of four retroreflective bands). The retroreflective material used on channelizing devices has a smooth, sealed surface that will display approximately the same color day and night. Keep all retroreflective material on devices in good condition, maintaining their retroreflective properties.

d. Flashing arrow panels should be used for all lane closures and may be required at any time during the job or project by the project Engineer, the Inspector or a Traffic Engineering official. **Use arrow panels in the Cincinnati Business District (CBD) area** for any work within a travel lane. Arrow panels must conform to the OMUTCD Part 6, Section 6F.53, "Arrow Panels". For a stationary lane closure the arrow panel should be located on the shoulder at the beginning of the merging taper. Where the shoulder is narrow, the arrow panel should be located in the closed lane. Use the arrow panel in combination with appropriate signs, channelizing devices and other temporary traffic control devices.

e. When flagging is necessary, the required method of flagging is with approved Stop/Slow paddles. Flags should be limited to emergency situations, intersections and low speed, low volume locations, which can best be controlled by a single flagger. The flagging operation and flagging station will conform to the OMUTCD Part 6E, "Flagger Control".

2. Failure to comply with Maintenance of Traffic requirements will result in work progress being suspended. The Contractor will be required to remove all personnel and equipment from the City of Cincinnati Right-Of-Way until proper traffic control is in place and approved by the Department of Transportation and Engineering's Inspector and/or Traffic Engineering official.

3. Before work begins, submit to the Engineer the name and telephone number of a person(s) who can be reached 24 hours a day by the City of Cincinnati and all interested police agencies. This person(s) is responsible for replacing and maintaining necessary traffic control devices per the approved traffic control plan.

4. Pedestrian protection and pedestrian access will be maintained at all times and will conform to the OMUTCD Part6D.01, "Pedestrian Consideration". Pedestrians' safety is of utmost importance throughout the life of the contract or project. Pedestrians will not be led into conflicts with work site vehicles, equipment or operations. Pedestrians will not be led into conflicts with vehicles moving through or around the work site. Pedestrians will be provided with a safe, convenient and accessible path that replicates as nearly as practical the most desired characteristics of the existing sidewalk(s) or footpath(s). If the pedestrian pathway is to be closed, post signs to direct pedestrians to the safest crossing point. If the pathway is to be closed between safe crossing points, post signs in advance of the closed area at a safe crossing point or make arrangements for safe pedestrian passage. If pedestrian barriers are required by Traffic Engineering or the Project Engineer, the Project Engineer must approve the type used. **The safety of pedestrians is the responsibility of the Contractor.**

5. Notify the following groups five (5) working days prior to the start of work and three (3) working days prior to any street closure with the approval of the City Traffic Engineer or his/her designee and the Project Engineer.
   - Local Police District
   - Local Firehouses
   - Queen City Metro
   - TANK (for work in CBD)
   - Local schools
   - Local hospitals
   - Abutting property owners

   The Engineer may require additional contacts.

6. If temporary signs to restrict parking are installed, notify the local police district 24 hours prior to installation and post the signs at least 14 hours before the parking restriction listed on the sign. Dates and times on temporary signs must be properly worded and legible from a distance of 10 feet.

7. The Contractor shall make arrangements and pay for the services of an off-duty police officer and cruiser, as needed. The Cincinnati Police Department (Phone: 352-2583) and Hamilton County Sheriff's Department (Phone: 595-8513) requires advance notice for these services. The use of a police officer(s) with a marked police vehicle is encouraged and may be required by Traffic Engineering, the Project Engineer, or the ROW Inspector when work is done within a signalized intersection. Locations that will require a police officer(s) will appear in Item #14. The hiring of a police officer(s) is for assistance with traffic and pedestrian control, for the safety of the traveling public and for the safety of the Contractor's employees. The police officer(s) is considered to be employed by the Contractor and the Contractor is responsible for their actions. Although they are employed by the Contractor, the police officer's placement and duties will be determined by Traffic Engineering, the Project Engineer, or the ROW Inspector. The closing of a road for the purpose of the proposed work will only be done with advanced notification and the approval of Traffic Engineering.

8. The Contractor, through the Engineer or Inspector, is required to contact the Traffic Engineering Division at 352-6229, or Traffic Service Bureau Controller Service section at 352-4391 one week prior to any grinding or curb repair operations near vehicle loop detectors. They will coordinate with the Contractor to save the existing loops or to arrange for proper signal operation if the loop(s) must be destroyed.

9. All sub-contractors must adhere to the same Maintenance of Traffic requirements as the general Contractor. The general Contractor is responsible for all sub-contractors.

10. One week prior to any grinding or paving, notify the Traffic Engineering representative. The Traffic Engineering representative will approve or not approve the date and time with respect to area events and/or planned lane closures.

11. Roadway and sidewalk within the project limits where the main directional flow of traffic is concentrated during the hours of 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM in the CBD, or any other through street, as defined in the City of Cincinnati's Traffic Code shall remain clear of obstruction during those hours.

12. If, in the opinion of the City Engineer, the City Traffic Engineer, or his/her designee, proper provisions and maintenance of traffic or traffic controls including the use of law enforcement officers are not provided by the Contractor, the City will provide appropriate provisions to maintain safe traffic controls. The cost of these services will be charged to the Contractor.

13. Failure to follow established traffic safety requirements may constitute a violation of the Contract and subjects the **Contractor** to all sanctions and penalties authorized by the Cincinnati Municipal Code.

14. **Police, Fire and local resident traffic shall be maintained at all times. The following restrictions on local roadways shall apply to the construction involved in this project. These restrictions are subject to be changed by the City of Cincinnati Traffic Engineer or his/her designee due to unforeseen circumstances or traffic conditions.**

    The Contractor shall obtain prior approval of the Department of Transportation and Engineering, Division of Traffic Engineering for all traffic detours and roadway closures. No open trench will be left unattended. Keep all areas in the roadway and sidewalk in safe, passable condition and meet all requirements set by the Department of Transportation and Engineering's City Engineer and City Traffic Engineer or his/her designee.

    a. On the following street(s), from the hours of 6:00 AM to 9:00 AM and from 3:00 PM to 6:00 PM, Monday through Friday, all lanes will be open and available to traffic. All other times at least two 10' lanes will be open and available to traffic (one lane in each direction). All lanes not approved for a permanent closure will be open and available to traffic when no work is being done. USE ARROW PANELS FOR ALL LANE CLOSURES OR LANE SHIFTS.
       - **Daly Road**
       - **Galbraith Road**

    b. On the following street(s), maintain traffic at all times. At least two 10' lanes will remain open and available to traffic (one lane in each direction) at all times, or use a flagging operation to move traffic around the work site. All lanes not approved for a permanent closure will be open and available to traffic when no work is being done.
       - **N/A**

    c. The following street(s) may be closed during work hours. Post "ROAD CLOSED TO THROUGH TRAFFIC" signs at **each** end of the street **segment** to be closed. Only one street segment may be closed at a time. Maintain local and emergency traffic at all times. Flag traffic as necessary. All lanes not approved for a permanent closure will be open and available to traffic when no work is being done.
       - **Archland Drive**
       - **Aspen Avenue**
       - **Aspen Way**
       - **Bahama Terrace**
       - **Baywood Lane**
       - **Bluebell Drive**
       - **Brushwood Avenue**
       - **Cary Avenue**
       - **Collegevue Place**
       - **Hawaiian Terrace**
       - **Heitzler Avenue**
       - **Lanius Lane**
       - **Larch Avenue**
       - **Springbrook Drive**

    d. When working in or within 50' of the following intersection(s), a uniformed police officer with patrol car is required to assist with vehicular traffic and pedestrian traffic through the intersection(s).
       - **AS DIRECTED BY THE INSPECTOR**

614.10 Work Zone Traffic Signals

1. Refer to section 1314 of the City of Cincinnati Supplement to State of Ohio Department of Transportation Construction and Material Specifications for the requirements of Maintenance of Existing Traffic Signals and Street Lighting Circuits.

614.11 Work Zone Pavement Markings

1. Replace all pavement markings, which are removed or damaged during the project or job to the same or better, condition and type as before the work began.
2. The Contractor is responsible to maintain complete visible markings per original conditions, approved maintenance of traffic plans, or final plans after each workday.

3. Following the grinding operations, use painted temporary pavement markings. Do not apply construction tape in the wet or cold weather periods, as it should not be expected to withstand snowplowing operations.

4. Following the placement of the leveling course, apply paint or construction tape per the final striping plan to serve as temporary pavement markings. If construction tape is used for temporary pavement markings on the leveling course, remove it before placement of the surface course.

5. Place all temporary pavement markings to retain lane assignments and shy away from areas near curbs, islands, etc., unless otherwise directed by the Engineer. Install these temporary pavement markings with the same professional alignment and general positive guidance that is utilized with the permanent pavement markings.

6. After the placement of the surface course, use paint for layout of the final striping plan. Do not use construction tapes on the surface course. After the Engineer has approved the layout of the temporary pavement markings, apply permanent pavement markings in thermoplastic on asphalt surface courses.

7. The City will provide documentation so that the temporary pavement markings can be properly aligned. The Engineer will provide inspection and approve the layout. The Contractor will perform the layout.

On any street which has the surface course placed after November 1, the Contractor will be required to maintain visible pavement markings until March 15 of the following year or until the permanent pavement markings are placed.

ITEM 614 – WORK ZONE EDGE LINE, CLASS I, 642 PAINT
ITEM 614 – WORK ZONE LANE LINE, CLASS I, 642 PAINT
ITEM 614 – WORK ZONE CENTER LINE, CLASS I, 642 PAINT
ITEM 614 – WORK ZONE CHANNELIZING LINE, CLASS I, 642 PAINT
ITEM 614 – WORK ZONE STOP LINE, CLASS I, 642 PAINT
ITEM 614 – WORK ZONE CROSSWALK LINE, CLASS I, 642 PAINT
ITEM 614 – WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I, 642 PAINT
ITEM 614 – WORK ZONE LANE ARROW, CLASS I, 642 PAINT
ITEM 614 – WORK ZONE GUIDE LINE, DASHED, CLASS I, 642 PAINT
ITEM 614 – WORK ZONE ISLAND MARKING, CLASS I, 642 PAINT

The Contractor is responsible to maintain visible markings after each workday.

The City will provide documentation for the permanent markings prior to the Contractor commencing with the pavement planing work. The Contractor is responsible for re-applying the pavement markings within the work limits at the end of the project, unless otherwise directed by the Engineer. Include the cost for this work under Item 614 – Work Zone.

Following both the grinding operation and the placement of the intermediate course, Apply Class I (full pattern) temporary pavement markings with 642 paint per the Pavement Marking Plans by the end of the workday. Paint must be machine applied and include glass beads. Spray painted markings from aerosol cans of paint are not acceptable.

If areas of the roadway are opened to traffic, place temporary reflectorized foil tape (per the Pavement Marking Plans) immediately after the grinding and paving operations until the application of the full striping pattern. Space the foil tape as follows:

Centerline: 1 foot yellow dash every 20 feet
Lane Line: 1 foot white dash every 20 feet
Stop Line: 1 foot white dash every 5 feet (See **Appendix G** for placement at intersections)
Crosswalk Line: 1 foot white dash every 5 feet (See **Appendix G** for placement at intersections)

Following the placement of the surface course Apply Class I (full pattern) temporary pavement markings with 642 paint per the Pavement Marking Plans by the end of the workday. Paint must be machine applied and include glass beads. Spray painted markings from aerosol cans of paint are not acceptable. Place temporary removable reflectorized tape (per the Pavement Marking Plans) immediately after paving, utilizing the aforementioned spacing. Use "Scotch Lane" (5710 Series – Detour Grade) tape as manufactured by the 3M Company or an approved equal. Do not use foil tape on the final surface course.

Install markings with the same professional alignment and general positive guidance that is utilized with the permanent markings. No payment will be made for installation of either foil or removable temporary tape. Include the cost for this work under 614 – Maintaining Traffic.

Layout the locations of all pavement markings to assure their proper placement. Contact the construction inspector or his/her designee to schedule approval of the pavement marking layout and pre-marking lines on the intermediate and surface course. The Contractor must perform the layout.

Loop detector work will take place after placing temporary pavement markings on the surface course. Place final thermoplastic pavement markings on surface course after completing loop detector work.

On any street which has the surface course placed after November 1, the Contractor will be required to maintain visible markings until March 15 of the following year or until the line striping contractor places the permanent markings.

Remove all existing pavement markings which conflict with the final pavement markings by water blasting or other methods with the approval of the engineer. Cost for this work is incidental to the cost of the new pavement markings.

ITEM 614 – LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

Use this item of work only at signalized intersections, in unsafe conditions, or where authorized by the Engineer.

The Cincinnati Police Department (phone: 352-2583) requires advance notice for these services.

The Contractor must submit sign in/sign-out ticket on a daily basis to verify payment hours.

ITEM 619 – FIELD OFFICE, TYPE B

The Contractor must provide a field office for the exclusive use of the City for the duration of the contract. The location of the field office must be approved by the Engineer.

The field office must include a separate enclosed room for the City's representative with a separate phone line provided with push button phone and a meeting space with table and chairs, and a fax machine.

One off-site parking space only is required for the City inspector within one block of the job site.

Use an existing permanent building with bathroom facilities as the field office. Trailers and port-o-lets are not permitted on this job.

The Contractor's staging area will NOT be provided by the City. The Contractor must rent space in an off-street parking lot. No curb space in addition to that which is required for the work underway will be closed off.

ITEM 621 – RAISED PAVEMENT MARKER REMOVED

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

Remove and dispose of existing Raised Pavement Markers found on any of the streets in this contract.

ITEM 621 – RPM, HIGH PROFILE, YELLOW/YELLOW
ITEM 621 – RPM, HIGH PROFILE, WHITE/RED
ITEM 621 – RPM, HIGH PROFILE, BLUE/BLUE

The locations of the RPM's are shown on the pavement marking plans which will be furnished to the Contractor at the Pre-Construction meeting.

Generally, raised pavement markers will be installed as follows:

1. Place two-sided (white/red) raised pavement markers along all lane lines at 80 foot intervals unless otherwise noted.

2. Place two-sided (yellow/yellow) raised pavement markers along all double yellow centerlines at 40 foot intervals unless otherwise noted.

3. Place two-sided (white/red) raised pavement markers along channelizing lines and white edge lines at 40 foot intervals unless otherwise noted.

4. Place two-sided (blue/blue) raised pavement markers on the centerline, near-side lane line(s) and edge line closest to all fire hydrants.

AMENDMENT OF STREET OR GROUP OF STREETS PRIOR TO NOTICE TO PROCEED

Prior to the construction schedule being approved by the City and prior to the issuance of the Notice to Proceed, the City may amend (add, deduct, replace) the list of streets being rehabilitated. The contractor will not be entitled to any additional compensation for such amendments unless the following applies.

In the case of added or replaced streets or "group of streets", costs associated for mobilization (prime and subcontractors), mark up, and potential loss of production will only be considered for compensation by the City if the added or replaced streets or "group of streets" are more than a 3 mile radius from the nearest street in the contract (as measured radially from any point on the street). Otherwise, all mobilization costs will be considered incidental to the contract.

AMENDMENT OF STREET OR GROUP OF STREETS AFTER THE NOTICE TO PROCEED

After the construction schedule is approved by the City and after the issuance of the Notice to Proceed, the City may amend (add, deduct, replace) the list of streets being rehabilitated. The contractor will not be entitled to any associated mobilization costs/compensation for added or replaced streets or "group of streets" that are located within a 1 mile radius of the nearest street in the contract (as measured radially from any point on the street).

If the added or replaced streets or "group of streets" are more than a 1 mile radius away from a contract street, the Contractor will be compensated for associated mobilization costs under Item Special – Mobilization greater than a 1 mile radius but less than a 3 mile radius or Item Special – Mobilization greater than a 3 mile radius.

Contract unit pricing will apply to all work quantities that result from added and/or replaced streets.

For streets to be considered a "group of streets", they must be located within a 1 mile radius of each other (as measured radially from any point on the street).

ITEM SPECIAL – MOBILIZATION GREATER THAN A 1 MILE RADIUS BUT LESS THAN A 3 MILE RADIUS

After the construction schedule is approved by the City and after the issuance of the Notice to Proceed, the City may amend (add, deduct, replace) the list of streets being rehabilitated. The contractor will be entitled to associated mobilization costs for added or replaced streets or "group of streets" that are greater than a 1 mile radius but less than a 3 mile radius away from the nearest street in the contract (as measured radially from any point on the street).

This contingency item is to cover contractor's associated mobilization costs such as subcontractor's mobilization, mark up, loss of production, etc.

Contract unit pricing will apply to all work quantities that result from added and/or replaced streets.

For streets to be considered a "group of streets", they must be located within a 1 mile radius of each other (as measured radially from any point on the street).

The City will pay for accepted quantities at the unit price bid for Item Special – Mobilization greater than a 1 mile radius but less than a 3 mile radius (Each).

Additional costs for the Maintenance of Traffic will be compensated for via “change order” or “contingency allocation”.

Additional costs for the contract bond above the sum of all of the contract’s contingency item amounts will be compensated for via “change order” or “contingency allocation”.

ITEM SPECIAL – MOBILIZATION GREATER THAN A 3 MILE RADIUS

After the construction schedule is approved by the City and after the issuance of the Notice to Proceed, the City may amend (add, deduct, replace) the list of streets being rehabilitated. The contractor will be entitled to associated mobilization costs/compensation for added or replaced streets or “group of streets” that are greater than a 3 mile radius away from the nearest street in the contract (as measured radially from any point on the street).

This contingency item is to cover contractor’s associated mobilization costs such as subcontractor’s mobilization, mark up, loss of production, etc.

Contract unit pricing will apply to all work quantities that result from added and/or replaced streets.

For streets to be considered a “group of streets”, they must be located within a 1 mile radius of each other (as measured radially from any point on the street).

The City will pay for accepted quantities at the unit price bid for Item Special – Mobilization greater than a 3 mile radius (Each).

Additional costs for the Maintenance of Traffic will be compensated for via “change order” or “contingency allocation”.

Additional costs for the contract bond above the sum of all of the contract’s contingency item amounts will be compensated for via “change order” or “contingency allocation”.

DRIVEWAY REPAIRS

The work of this project may involve replacing driveway aprons when grade differences between the existing driveway and that of the final surface course require reconstruction of the apron. It is the intention of this project to minimize the amount of driveway apron repair work. It is expected that most aprons on streets with existing roll curb can be salvaged by utilizing a “drop” roll curb along the driveway.

In some instances, the existing driveway aprons are damaged and deteriorated. If grades are not an issue, it is expected that new curb construction along a damaged and deteriorated apron will not result in the apron being replaced. Rather, the Contractor must make repairs in kind to the sections of the existing damaged apron that are disturbed by the curb excavating work to the satisfaction of the Engineer. The cost of this minimal repair work will not be paid separately, but will be included in the cost of the appropriate curb repair item.

ITEM 627 – CONCRETE DRIVEWAY (CITY SUPPLEMENT)

Adhere to the provisions of 627 of the City Supplement. Perform work in accordance with City Standard Drawings Accession. No.'s 21436, 21516 and 21508. The contract price includes the cost of concrete driveway removal.

The Contractor is encouraged to document areas of damaged driveway aprons prior to the start of construction work in order to help resolve possible damage claims by residents against the Contractor. There is no payment for the documentation work.

ITEM 627 – ASPHALT DRIVEWAY REPAIR

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

This work consists of repairing/replacing asphalt driveway aprons. Sawcut a neat perpendicular joint across the driveway at the limit of removal. Remove the necessary existing asphalt pavement and compact the subgrade. Place and compact full-depth 441 Type 1 hot-mix asphalt. Match the new pavement thickness with the existing driveway section. Seal joint with an asphalt binder material meeting the requirements of 702.01 of the ODOT CMS.

The City will pay for accepted quantities at the contract price for Item 627 – Asphalt Driveway Repair (SF).

ITEM 628 – SAWING CONCRETE (CITY SUPPLEMENT)

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

Adhere to the provisions of 628 of the City Supplement.

ITEM 644 – REMOVAL OF PAVEMENT MARKING (MI)
ITEM 644 – REMOVAL OF PAVEMENT MARKING (LF)
ITEM 644 – REMOVAL OF PAVEMENT MARKING (EA)

This work consists of removing all existing pavement markings per 641.10 and 614.11.G. The grinder method of pavement marking removal will not be permitted with this project.

Method of Measurement. Quantities of removed pavement markings will be measured using the same method of measurement as completed markings in the units designated. No extra compensation to be paid to the Contractor for mobilization if the City adds pavement marking removal quantities for any street or street segment listed as part of the original contract.

ITEM 644 – EDGE LINE
ITEM 644 – LANE LINE
ITEM 644 – CENTER LINE
ITEM 644 – CHANNELIZING LINE
ITEM 644 – STOP LINE, 12”
ITEM 644 – STOP LINE, 24”
ITEM 644 – CROSSWALK LINE, 6”
ITEM 644 – CROSSWALK LINE, 12”
ITEM 644 – TRANSVERSE/DIAGONAL LINE
ITEM 644 – LANE ARROW
ITEM 644 – GUIDE LINE – DASHED
ITEM 644 – ISLAND MARKING
ITEM 644 – SPEED HUMP MARKING

The City will provide documentation for the permanent markings prior to the Contractor commencing with the pavement planing work. The Contractor is responsible for re-applying the pavement markings within the work limits at the end of the project, unless otherwise directed by the Engineer. Include this work in the price bid for the pertinent 642 or 644 item.

Perform layout work and include in the price bid for these items. Use thermoplastic material for final pavement markings on surface course, unless otherwise noted.

Loop detector work will take place after placing temporary pavement markings on the surface course. Place final thermoplastic pavement markings on surface course after completing loop detector work.

Notify the Engineer at least 3 days in advance of applying the permanent pavement markings. The Engineer must inspect and approve the layout prior to the application of pavement markings.

It may be necessary to remove minor sections of existing line striping in order to line up with the new striping. Remove all existing pavement markings which conflict with the final pavement markings by waterblasting or other methods with the approval of the Engineer, per 641.10. Cost for this work is incidental to the cost of the new pavement markings.

Utilize 3M™ Wet Reflective Elements (or approved equal) meeting the following requirements for the edge, lane, and center line pavement markings in this project:

MATERIALS

Bonded Core Elements (surface-drop): The bonded core reflective elements shall contain either clear or yellow tinted microcrystalline ceramic beads bonded to the core. All “dry-performing” microcrystalline ceramic beads bonded to the core shall have a minimum index of refraction of 1.7 when tested using the liquid oil immersion method. All “wet performing” microcrystalline ceramic beads bonded to the core shall have a minimum index of refraction of 2.30 when tested using the liquid oil immersion method.

Refractive Index of Beads by Liquid Immersion Method

Equipment:

- Microscope (minimum 100X magnification).
- Light source-preferably sodium light or other monochromatic source, but not absolutely essential.
- Refractive index liquids. (Available from R.P. Cargill Laboratories, Inc, Cedar Grove, NJ).
- Microscope slide and slide cover.
- Mortar and pestle.

Procedure:

- Using the mortar and pestle, crush a few representative beads and place a few of these crushed particles on a microscope slide.
- Place a drop of a refractive index liquid, with an index as close to that of the crushed particles as can be estimated, on the particles.
- Cover the slide with a microscope slide cover and view the crushed particles by transmitted light normal to the slide surface (illuminated from the bottom).
- Adjust the microscope mirror to allow a minimum light intensity for viewing. This is particularly important if sodium light is not used.
- Bring a relatively flat and transparent particle into focus by slightly raising and lowering the objective (microscope tube), look for one or both of the following:

- Becke Line – This light line will appear to move either into the particle or away from it. In general, if the objective is lowered, the line will move toward the material of lower index.
- Variation in Particle Brightness – When raising the objective from a sharp focus, the particle will appear to get brighter or darker than the surrounding field. If it becomes brighter, the particles have a higher refractive index than the liquid. If it becomes darker, the glass has a lower refractive index than the liquid. In both cases, the opposite will be true if the objectives lowered.

- This test can be used to confirm that the beads are above or below a specified index. It can also be used to give an accurate determination of the index (+ or – 0.001). This is done by using several refractive index liquids until a match or near match of indices occurs. The index of the glass will equal that of the liquid when no becke line and no variation in bed brightness is observed.

APPLICATION REQUIREMENTS

Equipment: The equipment shall be capable of application of bonded core elements and glass spheres to the surface of the pavement marking by double drop application. The element dispenser for the first drop shall be attached to the striping machine in such a manner that the elements are dispensed closely behind the thermoplastic application device (ribbon gun, screed, and spray gun). The bead dispenser for the second drop shall be attached to the striping machine in such a manner that the beads are dispensed immediately after the first drop (bonded core elements).

The applicator for the bonded core elements and glass spheres shall be equipped with an automatic cut-off control that is synchronized with the cut-off of the thermoplastic material. The applicator shall be capable of delivering a uniform drop rate at variable thermoplastic application speeds.

The bonded core elements and glass spheres are applied such that they appear uniform on the entire traffic stripe and markings and that they are embedded 50%-60% for adhesion to the thermoplastic marking.

Application Plan:

Reflective Media Application – The specified reflective media shall be dropped at rates to achieve the following coating weights.

Reflective Media Drop Rates	Glass Spheres	Bonded Core Elements
Pounds per 4-inch linear foot	0.026 lbs/4-inch lf	0.011 lbs/4-inch lf
Grams per 4-inch linear foot	15 grams/4-inch lf	5 grams/4-inch lf
Pounds per 100 sq.ft.	12.5 lbs/100 sq.ft.	3.3 lbs/100 sq.ft.
Grams per sq.m.	486 grams/sq.m.	161 grams/sq.m.

Adhesion – The contractor shall ensure that the thermoplastic marking is well adhered to the road surface, and that the glass spheres and bonded core elements are well adhered to the binder with 50% to 60% embedment.

Retroreflectivity – The contractor shall ensure that the reflectorized thermoplastic pavement marking meets the following performance criteria:

Retroreflective Performance	White	Yellow
Dry (ASTM E 1710)	400	325
Wet recovery (ASTM E2177)	350	275
Wet Continuous (SSTM E2176)	100	75

The average initial retroreflectance shall be determined according to the measurement and sampling procedures outlined in ASTM D 6359, using a 30 meter retroreflectometer. The 30 meter retroreflectometer shall measure the coefficient of retroreflected luminance, RL, at observation angle of 10.5 degrees and an entrance angle of 88.76 degrees. RL shall be expressed in units of millicandelas per square foot per foot-candle [(mcd(ft-2)(fc-1)]. The metric equivalent shall be expressed in units of millicandelas per square meter per lux [(mcd(m-2)(lux-1)].

Initial performance of the pavement markings shall be measured within 7 days after application.

Wet retroreflectance values measured under a "condition of continuous wetting" (simulated rain) shall be in accordance with ASTM E2176, and to reduce variability between measurements, the test method shall be performed in a controlled laboratory environment while the marking is positioned with a 3 to 5 degree lateral slope. Measurements shall be reported as an average of a minimum of three locations. A sample of the complete finished product shall be applied to flat panels during application and brought back to the lab for testing.

ITEM 653 – TOPSOIL FURNISHED & PLACED

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

ITEM 1111 – FURNISH VALVE CHAMBER FRAME

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

This work consists of furnishing a new valve chamber frame and disposing of the old frame. Cost to install new frame is included in the price bid for 1111 – Valve Chamber Adjusted to Grade.

Adhere to the pertinent provisions of Item 1111 – Water Works Chambers of the City Supplement, and the requirements of the following Greater Cincinnati Water Works (GCWW) publication: "Rules and Regulations of the GCWW", current edition.

ITEM 1111 – FURNISH VALVE CHAMBER COVER

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

This work consists of furnishing a new valve chamber cover and disposing of the old cover. Cost to install new cover is included in the price bid for 1111 – Valve Chamber Adjusted to Grade.

Adhere to the pertinent provisions of Item 1111 – Water Works Chambers of the City Supplement, and the requirements of the following Greater Cincinnati Water Works (GCWW) publication: "Rules and Regulations of the GCWW", current edition.

ITEM 1125 – RESETTING EXISTING VALVE BOX, COMPLETE

Adhere to the pertinent provisions of Item 1125 of the City Supplement, and the requirements of the following Greater Cincinnati Water Works (GCWW) publication: "Rules and Regulations of the GCWW", current edition.

ITEM 1125 – FURNISH VALVE BOX CASTING

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

This work consists of furnishing a new valve box casting and cover and disposing of the old castings. Cost to install new valve box casting and cover is included in the price bid for 1125 – Resetting Existing Valve Boxes Complete.

Adhere to the pertinent provisions of Item 1125 – Resetting Existing Valve Boxes Complete of the City Supplement, and the requirements of the following Greater Cincinnati Water Works (GCWW) publication: "Rules and Regulations of the GCWW", current edition.

LOOP DETECTOR REPLACEMENT

It may be necessary to replace traffic signal loop detectors with the work of this project.

Notify the Engineer in advance of the cutting operation so the Division of Traffic Engineering will have 48 hours to layout and give final approval for cutting. The Contractor is to coordinate so loops are installed after temporary paint pavement markings are installed and their final locations are approved. Cut and install loops prior to final installation of thermoplastic pavement markings.

All proposed loop marking layout is to be coordinated through the Engineer. The Contractor should not contact any Division of Traffic Engineering staff.

The Contractor is responsible to perform all splices between the Loop Detector Cable and the Loop Lead-in Cable and to perform the proper test for continuity. Contact the Engineer when the loops are cut and all splices are performed. The Engineer is to notify Traffic Engineering that the loop detector installation has been complete.

Supply catalog cuts of all material used for Loop Detector Replacement for City review and approval as required in the City Supplement.

ITEM 1321 – CONDUIT, 2" PVC, CONCRETE ENCASED

Adhere to 1321.04 of the City Supplement. Install the materials furnished and used in this work in accordance with the details and the requirements of Section 625.12. Install all conduit pitched to drain toward the pull boxes, which have drain connections to a storm sewer, and include all elbows, fittings and connections. Installation methods and materials provided on Standard Construction Drawing ES-2-1 in **Appendix H** of these Special Provisions.

Measure conduit as the number of feet of conduit furnished and installed from center to center of pull boxes, foundations, etc., and include all fittings, appurtenances, joints, bends, grounds and concrete encasement where plans specify.

ITEM 1321 - TRENCH, 24" DEEP

In addition to the provisions of Item 625.13, trench paved areas as details show. Where possible, sawcut along existing joints or grooves. Before sawcutting, the Engineer must approve the sawcut layout. Restore in

accordance with Item 611.06 with backfilling. Restore surface to previous condition and disposal of surplus material.

Measure trenching as the number of feet of trench from center to center of foundations, pull boxes, etc., and include all excavation, backfill, compaction, disposal of surplus material and restoration of disturbed facilities and surfaces.

ITEM 1321 – WEATHERHEAD AND CONDUIT RISER, 1" DIA.

Provide weatherheads, conduit risers, and any other signal equipment on wood utility pole as necessary to the traffic signal equipment and electric service. Aluminum conduit for risers shall be rigid aluminum conduit per ANSI C80.5 and shall be used in the lower section of the riser in lieu of steel (RMC). Refer to Standard Drawing ES-2-2 in **Appendix H** for more information.

Payment includes all fittings clamps, banding, bushings and weep holes.

ITEM 1322 – PULLBOX, CONCRETE, 18" X 18", TYPE B

Adhere to 1322.01 of the City Supplement. Excavate as nearly as practicable to the outside dimensions of the pull box. Excavation includes removing any soil and or old pullboxes. After setting pull box to proper grade, backfill excavated spaces around pull box with suitable material and tamp in thin layers. Adhere to installation methods and materials indicated on Standard Construction Drawing ES-2-1 in **Appendix H** of these Special Provisions.

Measure pull boxes as a complete unit, in place. Payment includes excavation, forms, concrete Class C, frame and cover, reinforcing steel, grouting fittings, strainer/cesspool, aggregate, 1/2 inch expansion joint, backfilling and restoration of the immediate area.

ITEM 1323 – LOOP DETECTOR WIRE, 1 CONDUCTOR, NO. 14 AWG

Install the detector wire per Standard Construction Drawing ES-4-1 in **Appendix H** of these Special Provisions.

Install the loop detector wire in clear, dry weather. Before installing loop detector wire, brush and blow all slots clean of loose material and completely dry. Furnish No. 14 AWG, THWN, stranded of a continuous length from the spliced connection to the pair of shielded conductors in the lead-in cable splice. Protect the loop wire with a flexible vinyl plastic tubing of 3/16 inch I.D., a minimum of 1/32-inch wall, and 1/4 inch O.D. Furnish tubing capable of resisting deterioration from oils and solvents and highly abrasion resistant with a smooth bore. Insert the wire into the vinyl plastic tubing for the full length from the point of splicing and place it into the slot with the number of turns as shown on the plans, or as directed by the Engineer.

Install tubing of a continuous length from the point of splicing of the loop wire to the lead-in cable. Make no splices in the tubing. Push the wire carefully into the slots with a blunt tool to avoid damaging the insulation. If floating of the wire occurs, bend 1 inch of 1/4 inch O.D. vinyl tubing and wedge it into the slot to keep the wire down at two-foot centers.
At the time of placing the loop wire in the sawed slots, seal the ends of the tubing within the splice to prevent any entrance of moisture.

Twist all lengths of loop wires and tubing that are not embedded in the pavement with at least 5 turns per foot, including lengths in conduits and pull boxes.

Where specified, provide a conduit fitting on a riser in lieu of a pull box for detector wire and lead-in cable splicing. Include the flexible vinyl plastic tubing and conduit fitting where spliced, in the cost of Item 1328 - Detector Loop.

Fill the slots completely with a flexible embedding sealant approved by the City Traffic Engineer and as indicated on the details. Furnish an epoxy type or asphaltic waterbase sealant as approved by Traffic Engineering. Before applying sealant, brush or blow clean all slots of loose material and dry completely. Mix and place the sealant according to the manufacturer's instructions. Do not disturb slots until sealant has cured. Remove any excess or spillage.

Test the loop detector wire in accordance with Item 632 before and after loop sealant is applied.
Splice the lead-in cable to the loop wire in pull boxes with approved watertight splices meeting Item 1323.04. Splice as directed by the Engineer. Provide all labor and materials. Kits must be in compliance with ANSI C119.1 for "permanent water resistant cable splicing kit" and must also meet the requirements of Item 725.13.

No splices permitted in saw cuts or conduit. Correctly measure the cable to prevent unnecessary or unapproved splices. Make splices in pull boxes, or cabinets, and as shown in the details. The City must approve all splices.

Each detector loop will be measured as the total number of linear feet of wire installed in the pavement. Wire will be measured as the sum total of the following lengths: from the center of the pull box to the pavement edge, plus the actual feet running in the pavement loop slots depending on the number of turns laid, plus the return to the pull box, plus 5 feet pulled at each end for slack and splice.

Payment includes cleaning and blowing out the slotted areas, installing loop detector wire with tubing in place, furnishing and applying sealant, and splices and splice kits.

ITEM 1323 - LOOP DETECTOR LEAD-IN CABLE, 2 CONDUCTOR, NO. 14 AWG

Install to connect the loop detector wire to the loop detector amplifier. Splice the lead-in cable to the loop wire in pullboxes with approved watertight splices meeting Item 1323.04. Solder the connections together in a butt splice or use approved crimping connectors in conduit fittings where plans specify (where the loop wire has no pullbox for splicing) and insulate each cable in the splice individually with approved weatherproof electrical tape. Wrap the entire splice with approved weatherproof electrical tape and finish the splice by enclosing it in approved heat - shrink tubing.

Provide twisted multi-pair lead in cable (as plans require). Install No. 14 AWG, shielded, polyethylene insulated, chrome vinyl jacketed cable rated 750 volts for 14 AWG. Ground the shield only at the amplifier.

Installations: allow excess cable at weatherheads and power service connections for sufficient drip loops.

Provide additional cable for pullboxes, connections to equipment and as specifications indicate in the method of measurement to insure sufficient slack in underground installations.

ITEM 1328 – LOOP DETECTOR PAVEMENT CUTTING

Saw slots in the pavement for installation of vehicle loop detector wire in accordance with the configuration, dimensions, and combinations shown on the plans provided by the City. Chamfer at each intersection of saw cuts per ES-4-1 in **Appendix H** to prevent sharp bends of the wire. Overlap the intersection of saw cuts so that the

slots have full depth and a smooth bottom. Cut an extension from the loop to the pavement edge to allow wire routing to an adjacent pull box or conduit fitting.

When going through curbs, use 1 inch 1321.04 PVC Conduit, Type II, to take the wire from the pavement edge through the curb into the pull box or conduit fitting. Contractor is responsible to mark or document the existing location of the curb opening (1" conduit) prior to any grinding operation, so it can later be located for subsequent use. Where no curb is present, end the saw cut 6" before the pavement edge, at which point the wire routes through one inch 1321.04 PVC Conduit, Type II, to an adjacent pull box or conduit fitting.

Furnish slots 3/8 inch wide and a slot depth of 4 inches in asphalt pavement and 2 inches in concrete pavement. Ensure that the slot depth provides a covering above the uppermost detector wire of not less than 1 inch in concrete pavement and 3 inches in asphalt pavement after the loop installation is completed.

Where the saw cut crosses any construction joint or cracks in concrete or asphalt pavement, drill a 1-1/2 inch diameter hole at the joint and provide a relief loop for the detector wire. Use installation methods and materials as indicated on Standard Construction Drawings ES-4-1 and ES-4-2 in **Appendix H** of these Special Provisions.

Measure detector pavement cutting as the total number of feet of slots from the edge of the pavement to the loop and around the loop perimeter using the overall dimensions and making no adjustments for the diagonal corners.

Payment includes the cost of installing 1-inch conduit through the curb.

COLLEGEVUE PLACE SIDEWALK PROJECT

The following are the work items associated with the Collegevue Place Sidewalk Project.

ITEM 201 – CLEARING AND GRUBBING

This work consists of clearing and grubbing all protruding or low hanging brush, shrubs, trees and vegetation within the work area, as required to complete all items associated with the street improvement project. The Contractor may trim any protruding or low hanging brush, shrubs, trees and vegetation within the work limits to a maximum height of 14 feet above the pavement. Prior to the Contractor removing any trees, the Engineer will deem their removal acceptable.

The trees grouped under Item 201 – Clearing and Grubbing are as follows:

Lot 58	1 – 10" Tree

This item also consists of the removal and legal offsite disposal of all trash, debris and all other foreign material within the work area needed by the Contractor.

Perform the clearing and grubbing work in a safe manner to prevent any private property damage. The Contractor is responsible for repairing or replacing any damaged private property, at his cost, due to negligence.

ITEM 201 – TREE REMOVED, 18" SIZE
ITEM 201 – TREE REMOVED, 48" SIZE

This work includes the removal of existing trees located within the limits of the proposed sidewalk that will be adversely affected by construction activities. The trees slated for removal are shown on the Collegevue Place Sidewalk Project plans and as directed by the Engineer.

The trees grouped under Item 201 – Tree Removed, 18" Size are as follows:

Lots 23 – 32	2 – 14" Trees
	1 – 15" Tree
	1 – 18" Tree
	1 – 20" Tree
Lot 34	1 – 20" Tree
Lot 35	1 – 18" Tree
Lot 56	1 – 18" Tree
	1 – 20" Tree
Lot 57	2 – 20" Trees

The trees grouped under Item 201 – Tree Removed, 48" Size are as follows:

Lots 57 – 58	1 – 38" Tree (see below statement regarding this tree)
	1 – 40" Tree

This project also includes an estimated quantity of contingency items for use as directed by the Engineer in the instance where an existing tree is in poor condition or will create a hazardous working condition upon commencement of the improvements.

Include all costs for material, equipment, and labor to remove each tree in its entirety, including stump grinding in the bid unit price for Item 201 – Tree Removed.

ITEM 202 – MAILBOX REMOVE AND RESET

This work consists of removing and resetting existing mailboxes as necessary to accommodate the new sidewalk along Collegevue Place as shown on the Collegevue Place Sidewalk Project plans and as directed by the Engineer.

Replace mailbox if it is damaged during construction activities. This replacement is incidental to the cost of Item 202 – Mailbox Remove and Reset.

ITEM 202 – LANDSCAPE MATERIAL REMOVED

This work consists of removing landscape materials (wood timbers, etc.) as necessary to accommodate the new sidewalk along Collegevue Place as shown on the Collegevue Place Sidewalk Project plans and as directed by the Engineer.

ITEM 202 – WALL REMOVED

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

This work consists of removing portions of an existing wall as necessary to accommodate the new sidewalk along Collegevue Place as shown on the Collegevue Place Sidewalk Project plans and as directed by the Engineer.

ITEM 202 – PAVEMENT REMOVED

This work consists of removing existing pavement as necessary to install new concrete driveways at Eden Grove Academy Elementary School and Rugby Road (private road) to accommodate the new sidewalk along Collegevue Place as shown on the Collegevue Place Sidewalk Project plans and as directed by the Engineer.

ITEM 202 – WALK REMOVED

This work consists of removing existing egress sidewalks as necessary to accommodate the new sidewalk along Collegevue Place as shown on the Collegevue Place Sidewalk Project plans and as directed by the Engineer.

ITEM 202 – STEPS REMOVED

This work consists of removing existing steps as necessary to accommodate the new sidewalk along Collegevue Place as shown on the Collegevue Place Sidewalk Project plans and as directed by the Engineer.

Saw and trim the existing remaining sidewalk or steps to a neat line wherever the existing steps are removed from an abutting existing sidewalk.

Payment is based on the per foot of tread depth.

ITEM 202 – RAILING REMOVED

This work consists of removing existing hand railing as necessary to accommodate the new sidewalk along Collegevue Place as shown on the Collegevue Place Sidewalk Project plans and as directed by the Engineer.

ITEM 202 – CURB REMOVED

This work consists of removing existing curb as necessary to accommodate the new sidewalk along Collegevue Place as shown on the Collegevue Place Sidewalk Project plans and as directed by the Engineer.

ITEM 203 – EXCAVATION

This work includes removal of excess earth material and flexible pavement removal necessitated by the proposed improvements as shown on the Collegevue Place Sidewalk Project plans and as directed by the Engineer.

Include all costs for material, equipment, and labor to remove the excavation in the bid unit price for Item 203 – Excavation.

ITEM 203 – EMBANKMENT

This work includes placing clean fill material necessitated by the proposed improvements as shown on the Collegevue Place Sidewalk Project plans and as directed by the Engineer.

Include all costs for material, equipment, and labor to construct the embankment in the bid unit price for Item 203 – Embankment.

ITEM 608 – 5" CONCRETE WALK, AS PER PLAN

Perform work in accordance with the latest version of the City's Sidewalk Manual.

Per City Supplement, saw and trim the existing sidewalk to a neat line wherever the proposed concrete sidewalk adjoins or abuts an existing sidewalk.

Backfill the disturbed areas adjacent to new walk with topsoil and seed. Include the cost of this work in the price of Item 608 – Concrete Walk.

The Contractor is encouraged to document areas of damaged sidewalk prior to the start of construction work in order to help resolve possible damage claims by residents against the Contractor. No payment will be made for this work.

ITEM 608 – CURB RAMP
ITEM 608 – DETECTABLE WARNING, TYPE F
ITEM 609 – CONCRETE CURB, TYPE L-1, CURB RAMP (Accession No. 21430 & 27256)

Adhere to Item 608 of the City Supplement and the pertinent Curb Ramp Standard Drawings, Accession No. 27256, which are included in **Appendix E** along with the curb ramp maps. Payment for Item 608 – Curb Ramp includes the removal of the existing walk, the concrete for the sloped ramp, the labor required to form the ramp and the restoration of the areas adjacent to the curb ramp. Proposed curb ramp type and exact location to be determined in the field at the direction of the Engineer.

The curb ramps at the following intersections will be completed as part of this project.

Collegevue Place at North Bend Road

Additional curb ramp locations may be added as directed by the Engineer. A complete compilation of the curb ramps located within the work limits is provided in Appendix E for the Contractor's reference.

608.071 Detectable Warning Strip.

The following Type F Detectable Warning products are approved for use:

Manufacturer	Product	Address/Phone	Color
Access Products Inc.	Access Tile – 24" x 48" Cast-in-Place Replaceable (polymer composite)	241 Main Street, Suite 100 Buffalo, NY 14203 1-888-679-4022 or 1-347-278-7729	Brick Red (RD) FED 22144 / RAL 3016

		www.accesstile.com/products	
ADA Solutions, Inc.	24" x 48" Cast-in-Place Tactile / Detectable Warning Surface Tiles (glass, carbon and fiberglass composite)	P.O. Box 3 North Billerica, MA 01862 1-800-372-0519 www.adatile.com	Brick Red (Federal Color No. 20109)
ADA Solutions, Inc.	24" x 48" Cast-in-Place Replaceable Tactile / Detectable Warning Surface Tiles (glass, carbon and fiberglass composite)	P.O. Box 3 North Billerica, MA 01862 1-800-372-0519 www.adatile.com	Brick Red (Federal Color No. 20109)
Alerttile	Alertcast – 24" x 48" Cast-in-Place (Replaceable) Detectable Warning System (glass-reinforced thermoset composite)	215 South Water Street, Suite 103 Wilmington, NC 28401 1-877-232-6287 www.alerttile.com	Brick Red (Federal Color No. 22144)
Armorcast	24" x 48" Detectable Warning Panel Wet Set / Replaceable (polymer concrete)	13230 Saticoy Street North Hollywood, CA 91605 1-818-982-3600 www.armorcastprod.com	Brick Red
Engineered Plastics Inc.	Armor-Tile – Herculite Series – 24" x 48" Cast-in-Place Detectable / Tactile Warning Surface (vitrified polymer composite)	300 International Drive, Suite 100 Williamsville, NY 14221 1-800-682-2525 www.armor-tile.com	Brick Red (Federal Color No. 22144)
Engineered Plastics Inc.	Armor-Tile – 24" x 48" Cast-in-Place Detectable / Tactile Warning Surface (vitrified polymer composite)	300 International Drive, Suite 100 Williamsville, NY 14221 1-800-682-2525 www.armor-tile.com	Brick Red (Federal Color No. 22144)

Or approved equal.

Use Item 609 – Concrete Curb, Type L-1 – Curb Ramp in conjunction with curb ramp construction. Adhere to the pertinent requirements of Item 609 of these Special Provisions.

Upon completion of the surface course paving, the maximum allowable vertical offset where the curb ramp meets the new pavement is 1/4 inch. Remove and replace curb ramps exceeding the 1/4-inch maximum offset at the Contractor's expense.

Do not place tack along the curb/pavement interface within the limits of the curb ramps.

ITEM 608 – CONCRETE STEPS

This work consists of installing new concrete steps as necessary to accommodate the new sidewalk and maintain residential access to the new sidewalk along Collegevue Place as shown on the Collegevue Place Sidewalk Project plans and as directed by the Engineer.

Payment is based on the per foot of tread depth.

ITEM 609 – CONCRETE CURB, TYPE P-5

This work consists of installing new curb as necessary to install new concrete driveways at Eden Grove Academy Elementary School and Rugby Road to accommodate the new sidewalk along Collegevue Place as shown on the Collegevue Place Sidewalk Project plans and as directed by the Engineer.

ITEM 609 – CONCRETE CURB REPAIR, TYPE P-5

This work consists of removing and disposing various types of deteriorated curbs and the repair or replacement of these curbs in accordance with the pertinent City Standard Drawings (see Accession No.'s above) and the detail drawings in **Appendix D** these Special Provisions. The location and extent of curb repair will be determined by the Engineer prior to the start of the work of this contract.

Replace removed curb within two working days. After excavation, place necessary barricades over the cuts to protect the public.

Match the height of new curb with the grade of the existing sod space as best as possible. The height of the new curb must not be greater than the elevation of the existing sidewalk.

Confine operations to one side of the street at a time and do not restrict parking on both sides of the street.

Type L-1 Curb, when used with curb ramp installation, will be paid under Item 609 – Concrete Curb, Type L-1, Curb Ramp. Besides curb ramps, only use L-1 curb for driveway construction when encountering drives with high ingress/egress traffic volumes as directed by the Engineer.

Where a void is left between the new curb and the adjacent pavement, fill the void with concrete and finish flush with the top of the intermediate course. No additional payment will be made for this work.

Saw cut all sections of curb marked for removal on both ends to form a vertical joint in the remaining curb. Install 1/2 inch expansion paper to act as a bond breaker and permit proper expansion and contraction, including both sides of storm inlets. Use a 5.5 inch backform on all concrete curb repairs.

It may be necessary to grind the pavement at the interface of the new curb to provide a smooth transition into the gutter plate for final paving. Include the cost of this work in the price bid for the pertinent curb repair work.

Backfill the disturbed area behind the curb with topsoil meeting the requirements of 653 – Topsoil Furnished and Placed. Provide a topsoil sample to the Engineer for approval before placement. Topsoil must be shredded. Properly compact the topsoil after it is placed with a hand tamp or vibratory plate compactor to the satisfaction of the Engineer. Should noticeable settlement of the topsoil occur during the project, place additional topsoil to restore the settled area to the proper grade. No extra compensation to be paid to the Contractor for this work.

Where the Engineer directs the Contractor to increase the height of the new curb by 2 inches or more above the existing curb height, place additional topsoil as necessary to backfill the disturbed area along the back of curb. The City will pay for the additional topsoil at the contract price for Item 653 – Topsoil Furnished and Placed.

Restore the grass area behind the curb via hydroseeding.

Basis of Payment. Add the following: The contract price includes the cost of removing the existing curb. Completed curb will be paid at 80%. The remaining 20% will be paid upon the completion of the backfill and hydroseeding work. Payment of curb does not include measurement through CI's or similar structures.

HYDROSEEDING RESTORATION REQUIREMENTS

Wherever adjacent grass areas are disturbed by the removal and installation of curb, driveway, sidewalk, curb ramps, etc., restore the affected areas to their original grade by the use of topsoil, then hydroseed with a mixture of mulch, tackifier, grass seed, fertilizer, wetting agents, and water to establish an erosion control blanket. The following specifications apply:

1. Use a grass seed mixture consisting of 70% turf-type tall fescue, 20% perennial rye, and 10% Kentucky bluegrass applied at a rate of 8 pounds per 1,000 square feet.

2. Use a 15-30-15 starter-type fertilizer or equivalent applied at a rate of 300 pounds per acre (6.9 pounds per 1,000 square feet).

3. Use only 100% wood fiber mulch, factory-tinted green in color, applied at a minimum rate of 2,000 pounds per acre (45.9 pounds per 1,000 square feet), including a tackifier. During hot and dry weather, generally from May 15 through September 15, include a wetting agent, "Applegate ProTurf" or approved equal, in the mixture at recommended rates. Use "Applegate Wood-Lok with Tac" mulch or approved equal, which is generally available in 50 pound bags. No field added dye nor reprocessed wood fibers will be permitted.

4. Mulch, tackifier, grass seed, fertilizer, and water mixture must be hose-applied using mechanically agitated equipment, not a jet spray agitated machine. Shoot mixture downward from the hose onto the soil, not broadcast from a tower spray nozzle over a wide area eliminating over sprays. Cover 100% of the soil with the hydroseeding mixture.

Within six calendar days after concrete curb, sidewalk, or driveway is placed, remove all forms, backfill with topsoil, and apply hydroseeding. If the topsoil/hydroseeding operation is not completed within the six day period, liquidated damages will be assessed at the rate of $100 per day per street. The Contractor is encouraged to employ a professional landscaping firm familiar with hydroseeding operations to assure quality placement. The Contractor must clean up any over-spray of the hydroseeding operation to the satisfaction of the Engineer. Include the cost of the topsoil and hydroseeding in the price of the pertinent curb repair, sidewalk, or driveway replacement item.

Adhere to the watering requirements of 659.17.

The establishment of new grass is subject to the one-year correction and repair period inspection.

ITEM 611 – MANHOLE ADJUSTED TO GRADE

This work consists of adjusting manholes to grade using precast concrete shim rings, brick and mortar, or mortar only adjustments. If necessary, these items also include minor repairs to the top sections of manhole domes. The repairs are limited to the top 6 inches of the dome as measured below the casting.

For sanitary, storm, and combined sewer manholes, in lieu of concrete shim rings, the use of the following products is permitted:

1. Injection molded high density polyethylene (HDPE) adjustment rings as manufactured by Ladtech, Inc. The HDPE adjustment rings must be manufactured from polyethylene plastic as identified in ASTM Designation D-1248 (Standard Specification for Polyethylene Plastic Molding and Extrusion Materials). The adjustment rings must be tested to assure compliance with impact and loading requirements per the

ASSHTO Standard Specification for Highway Bridges. The maximum height adjustment with the HDPE rings is 6 inches.

Install per manufacture's recommendations and per the following:
For the HDPE adjusting ring installation, all concrete and metal surfaces must be clean of sand grit and loose rust. Between all HDPE plastic rings, concrete, and metal surfaces, spread a 3/8-inch continuous seal of Sikaflex 11FC or approved equal to each surface in contact with the rings. The Contractor must ensure that the seal between the cone, rings, and the metal casting have a continuous bead of sealant to ensure a complete and waterproof seal. Utilize a molded and indexed slope ring for all adjustments for matching sloped or crowned road grade.

All HDPE adjusting rings must be covered by a manufacture's five year warranty.

2. Infra-Riser® rubber composite riser rings as manufactured by East Jordan Iron Works. These rings must be installed per all manufacture's recommendations, including the use of a joint sealer. Place the ring just below the casting. Do not stack more than two rings high. The rings must not exceed a total height of 3 inches.

For adjustment of sewer manholes, refer to Manhole Adjustment detailed drawing in **Appendix D**.

Casting Adjustment Requirements:

7. Perform utility casting adjustments after the placement of the intermediate (leveling) course of asphalt pavement or after planing the surface course if no intermediate course is stipulated.

8. Sawcut a square area of pavement full depth around the casting a minimum of two feet beyond the edge of the casting to accommodate suitable mechanical compaction equipment.

9. Adjust castings to the proper height using precast concrete shims. Brick and mortar adjustments are only possible with permission of the Engineer.

10. After the casting has been adjusted to grade, restore the entire void in the pavement by tacking around the perimeter of the casting and sawcut edges and filling the opening around the casting with compacted Item 301 – Asphalt Concrete Base. The maximum compacted depth of any one layer of the 301 material for these adjustments is 4 inches. Compact the final lift of 301 base flush with the surface of the intermediate course or the planed surface if no intermediate course is used. The minimum depth of 301 material is 12 inches.

11. The use of dry mix concrete to fill the void around the casting is not permitted.

12. Upon completion of the adjustment work, immediately place a compacted 448 Type 1 hot-mix asphalt wedge around the raised casting. For castings exposed up to one inch, place a wedge with a minimum diameter of four feet around the casting. For castings exposed greater than one inch, place a wedge with a minimum diameter of six feet around the casting. Asphalt wedges must extend up to and be flush with the top of the casting. Install wedges by the end of the workday in which the casting is raised.

    Remove wedges immediately prior to machine paving. The cost of wedging castings is included in the price bid for Item 448 – Asphalt Concrete Surface Course.

    Replace square sewer manhole castings with round manhole castings. The Metropolitan Sewer District (MSD) will furnish these and other castings broken and/or needing replacement due to no fault of the Contractor. Pick-up of these items (and the return of salvaged castings) at the MSD-WWC Facility, located at

225 West Galbraith Road, is the responsibility of the Contractor. Include the cost of hauling castings in the contract price for this item.

ITEM 611 – MANHOLE RECONSTRUCTED TO GRADE

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

This work consists of reconstructing existing manholes as necessary to accommodate the new sidewalk and maintain residential access to the new sidewalk along Collegevue Place as shown on the Collegevue Place Sidewalk Project plans and as directed by the Engineer.

ITEM 627 – CONCRETE DRIVEWAY (CITY SUPPLEMENT)

Adhere to the provisions of 627 of the City Supplement. Perform work in accordance with City Standard Drawings Accession. No.'s 21436, 21516 and 21508. The contract price includes the cost of concrete driveway removal.

The Contractor is encouraged to document areas of damaged driveway aprons prior to the start of construction work in order to help resolve possible damage claims by residents against the Contractor. There is no payment for the documentation work.

ITEM 627 – CONCRETE DRIVEWAY, AS PER PLAN

This work consists of installing new concrete driveways at Eden Grove Academy Elementary School and Rugby Road (private road) to accommodate the new sidewalk along Collegevue Place as shown on the Collegevue Place Sidewalk Project plans and as directed by the Engineer.

Adhere to the provisions of 627 of the City Supplement. Perform work in accordance with City Standard Drawings Accession. No.'s 21436, 21516 and 21508.

ITEM 1132 – RESETTING EXISTING CURB AND ROADWAY BOXES

This project includes an estimated quantity of this contingency item for use as directed by the Engineer.

Adhere to the pertinent provisions of Item 1132 of the City Supplement, and the requirements of the following Greater Cincinnati Water Works (GCWW) publication: "Rules and Regulations of the GCWW", current edition.

ITEM SPECIAL – GAS STREET LIGHT, REMOVE AND STORE

An allowance amount of **$641.50** per each light plus a **5%** markup is provided on the Bid Form for this item.

This work consists of removing existing gas street lights and storing the gas lights off-site for the duration of the street improvements along Collegevue Place as shown on the Collegevue Place Sidewalk Project plans. Contractor must coordinate the removal of the existing gas street lights with representatives of the Cincinnati Gaslite Company. The removed gas lights will be stored by the Cincinnati Gaslite Company.

Payment is full compensation for removing the existing gas street lights, shutting off the gas service, coordination with the Cincinnati Gaslite Company and for all labor, equipment, and incidentals necessary to complete this work.

Contractor must provide detailed documentation from the Cincinnati Gaslite Company indicating the final costs associated with this item. Contractor may include no more than a 5% mark-up on the final costs.

ITEM SPECIAL – GAS STREET LIGHT, STRAIGHTEN POLE

An allowance amount of **$231.50** per each light plus a **5%** markup is provided on the Bid Form for this item.

This work consists of straightening existing poles. A pole is considered straight when it is within four degrees of plumb. Contractor must coordinate the pole straightening with representatives of the Cincinnati Gaslite Company.

Notify the City of poles observed to need straightening, but no straightening should be done without direction from the City.

Payment is full compensation for straightening the existing gas street lights, coordination with the Cincinnati Gaslite Company and for all labor, equipment, and incidentals necessary to complete this work.

Contractor must provide detailed documentation from the Cincinnati Gaslite Company indicating the final costs associated with this item. Contractor may include no more than a 5% mark-up on the final costs.

ITEM SPECIAL – GAS STREET LIGHT, INSTALL REPLACEMENT DMI BURNERS

An allowance amount of **$84.00** per each light plus a **5%** markup is provided on the Bid Form for this item.

Maintain a complete lamp unit, erected in position on top of a post, all renewals and replacement of materials, the cleaning of the glassware and maintaining the equipment constantly in first class operating condition.

Payment is full compensation for installing replacement DMI burners, coordination with the Cincinnati Gaslite Company and for all labor, equipment, and incidentals necessary to complete this work.

Contractor must provide detailed documentation from the Cincinnati Gaslite Company indicating the final costs associated with this item. Contractor may include no more than a 5% mark-up on the final costs.

ITEM SPECIAL – GAS STREET LIGHT, PAINT POLE AND LANTERN FRAME

An allowance amount of **$55.35** per each light plus a **5%** markup is provided on the Bid Form for this item.

Paint the post and lantern frame as directed by the Engineer.

Preparation consists of wire brushing or other removal of all loose paint, scale or rust. Apply a rust-inhibiting primer where necessary.

Apply a finish coat of high-quality alkyd heavy-duty exterior enamel recommended for use on metal surfaces, or other paint approved by the City.

The City will provide color selection.

Apply paint only in dry weather, and with temperature and humidity conditions within the range recommended by the paint manufacturer.

Provide painting in a first-class manner presenting a smooth, neat, durable finish.

Payment is full compensation for preparing and painting the pole and lantern frame, coordination with the Cincinnati Gaslite Company and for all labor, equipment, and incidentals necessary to complete this work.

Contractor must provide detailed documentation from the Cincinnati Gaslite Company indicating the final costs associated with this item. Contractor may include no more than a 5% mark-up on the final costs.

ITEM SPECIAL – GAS STREET LIGHT, REINSTALL

An allowance amount of **$641.50** per each light plus a **5%** markup is provided on the Bid Form for this item.

This work consists of reinstalling the previously removed existing gas street lights behind the new sidewalk, but within the existing right of way along Collegevue Place. Contractor must coordinate the installation of the existing gas street lights with representatives of the Cincinnati Gaslite Company.

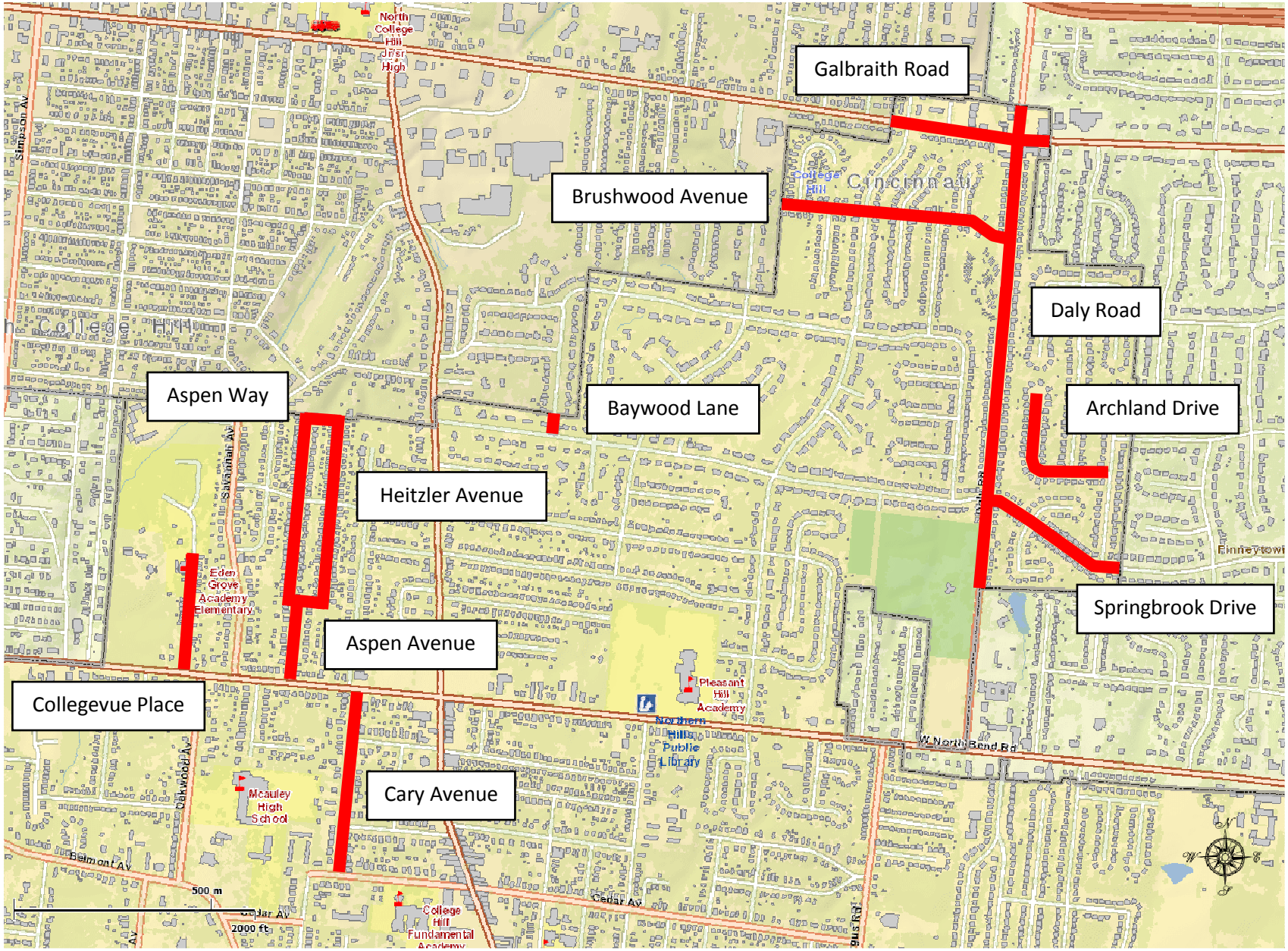
Payment is full compensation for installing the previously removed existing gas street lights, turning on the gas service, coordination with the Cincinnati Gaslite Company and for all labor, equipment, and incidentals necessary to complete this work.

Contractor must provide detailed documentation from the Cincinnati Gaslite Company indicating the final costs associated with this item. Contractor may include no more than a 5% mark-up on the final costs.

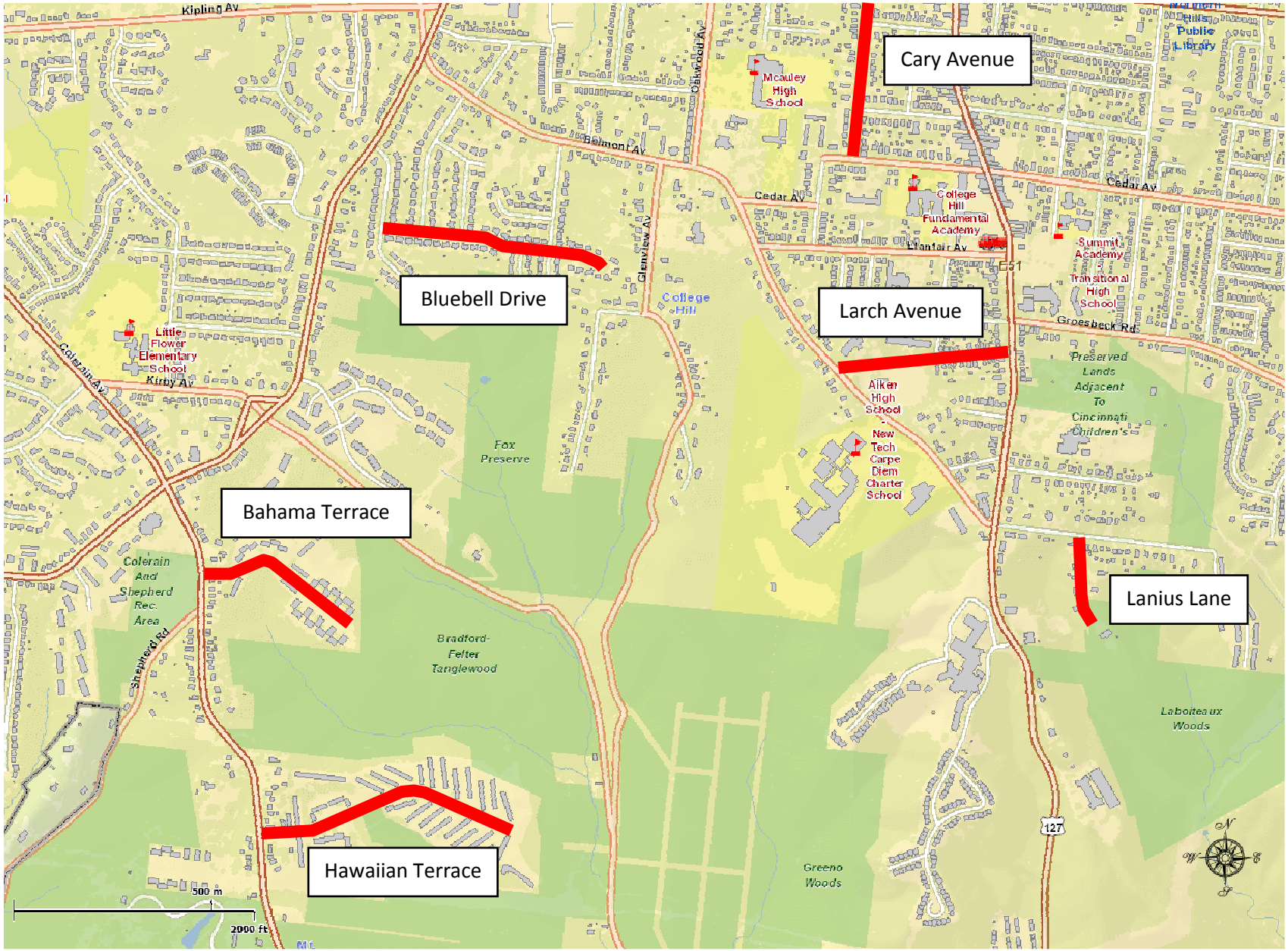
APPENDIX

A	Location Maps
B	Estimated Quantity Sheets
C	“No Parking” Posting Requirements
D	Street Rehabilitation Detail Drawings
E	Curb Ramp Maps and Standard Drawings
F	Raised Manhole Sign
G	Typical Pavement Marking Details
H	Loop Detector Standard Drawings

2016 STREET REHABILITATION – CIP #4
LOCATION MAPS



2016 STREET REHABILITATION – CIP #4
LOCATION MAPS



2016 Street Rehabilitation - CIP #4

Ref. No.	Spec No.	Item Description	Map # / Units	Archland Drive - Montevista Drive to North Terminus	Aspen Avenue - North Bend Road to Heitzler Avenue	Aspen Way - Heitzler Avenue to Heitzler Avenue	Bahama Terrace - East Terminus to Colerain Avenue	Baywood Lane - Hollywood Avenue to Corporation Line	Bluebell Drive - East Terminus to Thornhill Avenue	Brushwood Avenue - Daly Road to West Terminus	Cary Avenue - Cedar Avenue to North Bend Road	Collegevue Place - North Bend Road to North Terminus	Daly Road - Corporation Line to Corporation Line	Galbraith Road - Corporation Line to Corporation Line	Hawaiian Terrace - East Terminus to Colerain Avenue	Heitzler Avenue - Aspen Way to Aspen Way
			Map #	1	1	1	2	1	2	1	1/2	1	1	1	2	1
			Units													
4	202	Pavement Removed	Sq. Yds.	0	0	0	0	0	0	0	0	0	0	0	23	0
6	252	Full Depth Rigid Pavement Removal and Flexible Replacement	Sq. Yds.	336	0	230	480	32	845	421	85	109	4,925	693	1,834	366
7	253	Pavement Repair	Sq. Yds.	0	329	0	0	0	0	0	39	0	0	0	0	0
8	254	Pavement Planing, Asphalt Concrete	Sq. Yds.	3,440	0	4,832	3,575	480	5,361	5,405	1,333	2,575	19,144	6,854	9,636	4,256
9	254	Pavement Planing, Asphalt Concrete, Profiling	Sq. Yds.	0	2,083	0	0	0	0	0	4,277	0	0	0	0	0
11	301	Asphalt Concrete Base, PG64-22	Cu. Yds.	0	0	0	0	0	0	0	51	0	0	0	19	0
13	442	Asphalt Concrete Surface Course, 12.5 mm, Type A (448)	Cu. Yds.	0	0	0	0	0	0	0	0	0	798	286	0	0
14	448	Asphalt Concrete Surface Course, Type 1, PG64-22	Cu. Yds.	96	58	134	99	13	149	150	143	72	0	0	268	118
15	448	Asphalt Concrete Intermediate Course, Type 1, PG64-28	Cu. Yds.	0	0	0	0	0	0	0	0	0	532	190	0	0
16	448	Asphalt Concrete Intermediate Course, Type 1, PG64-22	Cu. Yds.	96	58	134	99	13	149	150	143	72	0	0	268	118
17	Special	Asphalt Speed Hump	Ea.	0	0	0	0	0	0	0	0	3	0	0	0	0
18	Special	Asphalt Rejuvenating Agent	Sq. Yds.	3,440	2,083	4,832	3,575	480	5,361	5,405	5,160	2,575	0	0	9,636	4,256
21	608	5" Concrete Walk	Sq. Ft.	0	0	102	156	0	0	0	0	0	100	0	217	0
22	608	Curb Ramp	Sq. Ft.	100	0	0	230	0	0	775	100	0	830	805	0	200
23	608	Detectable Warning, Type F	Sq. Ft.	8	0	0	16	0	0	56	8	0	48	56	0	16
24	609	Concrete Curb, Type L-1 - Curb Ramp	Lin. Ft.	10	0	0	23	0	0	78	10	0	83	81	0	20
25	609	Asphaltic Concrete Curb, Type A-1	Lin. Ft.	0	0	0	0	0	0	0	0	0	0	0	0	0
28	609	Concrete Combined Curb & Gutter, Type P-4	Lin. Ft.	0	98	0	1,926	0	0	0	2,236	0	0	0	4,508	0
29	609	Concrete Curb Repair, Type P-5	Lin. Ft.	0	0	10	0	0	0	95	800	20	2,263	142	0	0
30	609	Concrete Curb Repair, Type R-5 (Exposed Gutter Plate)	Lin. Ft.	0	0	3,614	0	360	0	0	0	0	0	0	0	0

2016 Street Rehabilitation - CIP #4

Ref. No.	Spec No.	Item Description	Map # / Units	Archland Drive - Montevista Drive to North Terminus	Aspen Avenue - North Bend Road to Heitzler Avenue	Aspen Way - Heitzler Avenue to Heitzler Avenue	Bahama Terrace - East Terminus to Colerain Avenue	Baywood Lane - Hollywood Avenue to Corporation Line	Bluebell Drive - East Terminus to Thornhill Avenue	Brushwood Avenue - Daly Road to West Terminus	Cary Avenue - Cedar Avenue to North Bend Road	Collegevue Place - North Bend Road to North Terminus	Daly Road - Corporation Line to Corporation Line	Galbraith Road - Corporation Line to Corporation Line	Hawaiian Terrace - East Terminus to Colerain Avenue	Heitzler Avenue - Aspen Way to Aspen Way
			Map #	1	1	1	2	1	2	1	1/2	1	1	1	2	1
			Units													
31	609	Concrete Curb Repair, Type R-5	Lin. Ft.	419	0	0	0	0	1,155	0	0	0	0	0	0	24
35	611	3" Conduit, Type G	Lin. Ft.	3	3	75	3	0	69	3	3	60	0	0	6	159
36	611	Manhole, Adjusted to Grade	Ea.	6	3	4	4	0	14	9	7	1	8	7	11	1
37	1111	Valve Chamber, Adjusted to Grade	Ea.	1	0	2	1	0	1	2	0	1	3	1	0	0
40	611	Inlet Adjusted to Grade	Ea.	1	1	2	2	1	2	3	1	1	7	2	5	1
45	611	Inlet Grates	Ea.	12	0	5	14	1	17	0	4	0	38	0	32	0
48	614	Work Zone Lane Line, Class I, 642, Paint	Mi.	0	0	0	0	0	0	0	0	0	5	2	0	0
49	614	Work Zone Center Line, Class I, 642, Paint	Mi.	0	0	0	0	0	0	0	0	0	2	1	0	0
50	614	Work Zone Channelizing Line, Class I, 642 Paint	Lin. Ft.	0	0	0	0	0	0	0	0	0	600	1,350	0	0
51	614	Work Zone Stop Line, Class I, 642 Paint	Lin. Ft.	0	0	0	0	0	0	0	0	0	210	210	0	0
52	614	Work Zone Crosswalk Line, Class I, 642 Paint	Lin. Ft.	0	0	0	0	0	0	0	0	0	780	780	0	0
53	614	Work Zone Transverse/Diagonal Line, Class I, 642 Paint	Lin. Ft.	0	0	0	0	0	0	0	0	0	0	1,050	0	0
54	614	Work Zone Lane Arrow, Class I, 642 Paint	Ea.	0	0	0	0	0	0	0	0	0	12	24	0	0
56	614	Work Zone Island Marking, Class I, 642 Paint	Sq. Ft.	0	0	0	0	0	0	0	0	0	0	150	0	0
65	627	Concrete Driveway	Sq. Ft.	800	200	0	1,074	150	0	0	1,300	0	6,155	0	3,398	0
72	644	Lane Line	Mi.	0	0	0	0	0	0	0	0	0	2	1	0	0
73	644	Center Line	Mi.	0	0	0	0	0	0	0	0	0	1	0	0	0
74	644	Channelizing Line	Lin. Ft.	0	0	0	0	0	0	0	0	0	200	450	0	0
75	644	Stop Line, 12"	Lin. Ft.	0	0	0	0	0	0	0	0	0	70	70	0	0
77	644	Crosswalk Line, 6 inch	Lin. Ft.	0	0	0	0	0	0	0	0	0	260	260	0	0

2016 Street Rehabilitation - CIP #4

Ref. No.	Spec No.	Item Description	Map # / Units	Archland Drive - Montevista Drive to North Terminus	Aspen Avenue - North Bend Road to Heitzler Avenue	Aspen Way - Heitzler Avenue to Heitzler Avenue	Bahama Terrace - East Terminus to Colerain Avenue	Baywood Lane - Hollywood Avenue to Corporation Line	Bluebell Drive - East Terminus to Thornhill Avenue	Brushwood Avenue - Daly Road to West Terminus	Cary Avenue - Cedar Avenue to North Bend Road	Collegevue Place - North Bend Road to North Terminus	Daly Road - Corporation Line to Corporation Line	Galbraith Road - Corporation Line to Corporation Line	Hawaiian Terrace - East Terminus to Colerain Avenue	Heitzler Avenue - Aspen Way to Aspen Way
			Map #	1	1	1	2	1	2	1	1/2	1	1	1	2	1
			Units													
79	644	Transverse/Diagonal Line	Lin. Ft.	0	0	0	0	0	0	0	0	0	0	350	0	0
80	644	Lane Arrow	Ea.	0	0	0	0	0	0	0	0	0	4	8	0	0
82	644	Island Marking	Sq. Ft.	0	0	0	0	0	0	0	0	0	0	50	0	0
83	644	Speed Hump Marking	Ea.	0	0	0	0	0	0	0	0	6	0	0	0	0
87	1125	Resetting Existing Valve Box, Complete	Ea.	0	0	0	0	0	0	2	6	2	1	7	1	0
93	1323	Loop Detector Wire, 1 Conductor, No. 14 AWG	Lin. Ft.	0	0	0	0	0	0	0	0	0	150	330	300	0
95	1328	Loop Detector Pavement Cutting	Lin. Ft.	0	0	0	0	0	0	0	0	0	60	130	120	0
96	201	Clearing and Grubbing	Lump Sum	0	0	0	0	0	0	0	0	1	0	0	0	0
97	201	Tree Removed, 18" size	Ea.	0	0	0	0	0	0	0	0	11	0	0	0	0
98	201	Tree Removed, 48" size	Ea.	0	0	0	0	0	0	0	0	2	0	0	0	0
99	202	Mailbox Remove and Reset	Ea.	0	0	0	0	0	0	0	0	2	0	0	0	0
100	202	Landscape Material Removed	Lump Sum	0	0	0	0	0	0	0	0	1	0	0	0	0
101	202	Wall Removed	Lin. Ft.	0	0	0	0	0	0	0	0	2	0	0	0	0
102	202	Pavement Removed	Sq. Yds.	0	0	0	0	0	0	0	0	440	0	0	0	0
103	202	Walk Removed	Sq. Ft.	0	0	0	0	0	0	0	0	211	0	0	0	0
104	202	Steps Removed	Lin. Ft.	0	0	0	0	0	0	0	0	10	0	0	0	0
105	202	Railing Removed	Lin. Ft.	0	0	0	0	0	0	0	0	11	0	0	0	0
106	202	Curb Removed	Lin. Ft.	0	0	0	0	0	0	0	0	67	0	0	0	0
107	203	Excavation	Cu. Yds.	0	0	0	0	0	0	0	0	190	0	0	0	0
108	203	Embankment	Cu. Yds.	0	0	0	0	0	0	0	0	5	0	0	0	0

2016 Street Rehabilitation - CIP #4

Ref. No.	Spec No.	Item Description	Map # / Units	Archland Drive - Montevista Drive to North Terminus	Aspen Avenue - North Bend Road to Heitzler Avenue	Aspen Way - Heitzler Avenue to Heitzler Avenue	Bahama Terrace - East Terminus to Colerain Avenue	Baywood Lane - Hollywood Avenue to Corporation Line	Bluebell Drive - East Terminus to Thornhill Avenue	Brushwood Avenue - Daly Road to West Terminus	Cary Avenue - Cedar Avenue to North Bend Road	Collegevue Place - North Bend Road to North Terminus	Daly Road - Corporation Line to Corporation Line	Galbraith Road - Corporation Line to Corporation Line	Hawaiian Terrace - East Terminus to Colerain Avenue	Heitzler Avenue - Aspen Way to Aspen Way
			Map #	1	1	1	2	1	2	1	1/2	1	1	1	2	1
			Units													
109	608	5" Concrete Walk, as per Plan	Sq. Ft.	0	0	0	0	0	0	0	0	4,409	0	0	0	0
110	608	Curb Ramp	Sq. Ft.	0	0	0	0	0	0	0	0	100	0	0	0	0
111	608	Detectable Warning, Type F	Sq. Ft.	0	0	0	0	0	0	0	0	8	0	0	0	0
112	609	Concrete Curb, Type L-1 - Curb Ramp	Lin. Ft.	0	0	0	0	0	0	0	0	10	0	0	0	0
113	608	Concrete Steps	Lin. Ft.	0	0	0	0	0	0	0	0	4	0	0	0	0
114	609	Concrete Curb, Type P-5	Lin. Ft.	0	0	0	0	0	0	0	0	74	0	0	0	0
115	609	Concrete Curb Repair, Type P-5	Lin. Ft.	0	0	0	0	0	0	0	0	80	0	0	0	0
116	611	Manhole, Adjusted to Grade	Ea.	0	0	0	0	0	0	0	0	4	0	0	0	0
117	611	Manhole Reconstructed to Grade	Ea.	0	0	0	0	0	0	0	0	1	0	0	0	0
118	627	Concrete Driveway	Sq. Ft.	0	0	0	0	0	0	0	0	900	0	0	0	0
119	627	Concrete Driveway, As Per Plan	Sq. Ft.	0	0	0	0	0	0	0	0	440	0	0	0	0
120	1132	Resetting Existing Curb & Roadway Boxes, Complete	Ea.	0	0	0	0	0	0	0	0	9	0	0	0	0
121	Special	Gas Street Light, Remove and Store	Ea.	0	0	0	0	0	0	0	0	3	0	0	0	0
122	Special	Gas Street Light, Straighten Pole	Ea.	0	0	0	0	0	0	0	0	4	0	0	0	0
123	Special	Gas Street Light, Install Replacement DMI Burners	Ea.	0	0	0	0	0	0	0	0	7	0	0	0	0
124	Special	Gas Street Light, Paint Pole and Lantern Frame	Ea.	0	0	0	0	0	0	0	0	7	0	0	0	0
125	Special	Gas Street Light, Reinstall	Ea.	0	0	0	0	0	0	0	0	3	0	0	0	0

2016 Street Rehabilitation - CIP #4

Ref. No.	Spec No.	Item Description	Map # / Units	Lanius Lane - South Terminus to Hill Crest Road	Larch Avenue - Hamilton Avenue to Belmont Avenue	Springbrook Drive - Corporation Line to Daly Road
			Map #	2	2	1
			Units			
4	202	Pavement Removed	Sq. Yds.	0	0	0
6	252	Full Depth Rigid Pavement Removal and Flexible Replacement	Sq. Yds.	0	0	622
7	253	Pavement Repair	Sq. Yds.	31	138	0
8	254	Pavement Planing, Asphalt Concrete	Sq. Yds.	0	0	3,408
9	254	Pavement Planing, Asphalt Concrete, Profiling	Sq. Yds.	1,701	3,891	0
11	301	Asphalt Concrete Base, PG64-22	Cu. Yds.	114	80	0
13	442	Asphalt Concrete Surface Course, 12.5 mm, Type A (448)	Cu. Yds.	0	0	0
14	448	Asphalt Concrete Surface Course, Type 1, PG64-22	Cu. Yds.	47	108	95
15	448	Asphalt Concrete Intermediate Course, Type 1, PG64-28	Cu. Yds.	0	0	0
16	448	Asphalt Concrete Intermediate Course, Type 1, PG64-22	Cu. Yds.	47	108	95
17	Special	Asphalt Speed Hump	Ea.	0	0	3
18	Special	Asphalt Rejuvenating Agent	Sq. Yds.	1,701	3,891	3,408
21	608	5" Concrete Walk	Sq. Ft.	0	370	0
22	608	Curb Ramp	Sq. Ft.	0	0	0
23	608	Detectable Warning, Type F	Sq. Ft.	0	0	0
24	609	Concrete Curb, Type L-1 - Curb Ramp	Lin. Ft.	0	0	0
25	609	Asphaltic Concrete Curb, Type A-1	Lin. Ft.	42	0	0
28	609	Concrete Combined Curb & Gutter, Type P-4	Lin. Ft.	0	2,900	0
29	609	Concrete Curb Repair, Type P-5	Lin. Ft.	0	0	0
30	609	Concrete Curb Repair, Type R-5 (Exposed Gutter Plate)	Lin. Ft.	0	0	0

2016 Street Rehabilitation - CIP #4

Ref. No.	Spec No.	Item Description	Map # / Units	Lanius Lane - South Terminus to Hill Crest Road	Larch Avenue - Hamilton Avenue to Belmont Avenue	Springbrook Drive - Corporation Line to Daly Road
			Map #	2	2	1
			Units			
31	609	Concrete Curb Repair, Type R-5	Lin. Ft.	0	0	25
35	611	3" Conduit, Type G	Lin. Ft.	0	3	3
36	611	Manhole, Adjusted to Grade	Ea.	0	6	2
37	1111	Valve Chamber, Adjusted to Grade	Ea.	1	0	0
40	611	Inlet Adjusted to Grade	Ea.	0	2	2
45	611	Inlet Grates	Ea.	0	0	11
48	614	Work Zone Lane Line, Class I, 642, Paint	Mi.	0	0	0
49	614	Work Zone Center Line, Class I, 642, Paint	Mi.	0	0	0
50	614	Work Zone Channelizing Line, Class I, 642 Paint	Lin. Ft.	0	0	0
51	614	Work Zone Stop Line, Class I, 642 Paint	Lin. Ft.	0	0	0
52	614	Work Zone Crosswalk Line, Class I, 642 Paint	Lin. Ft.	0	0	0
53	614	Work Zone Transverse/Diagonal Line, Class I, 642 Paint	Lin. Ft.	0	0	0
54	614	Work Zone Lane Arrow, Class I, 642 Paint	Ea.	0	0	0
56	614	Work Zone Island Marking, Class I, 642 Paint	Sq. Ft.	0	0	0
65	627	Concrete Driveway	Sq. Ft.	0	1,469	0
72	644	Lane Line	Mi.	0	0	0
73	644	Center Line	Mi.	0	0	0
74	644	Channelizing Line	Lin. Ft.	0	0	0
75	644	Stop Line, 12"	Lin. Ft.	0	0	0
77	644	Crosswalk Line, 6 inch	Lin. Ft.	0	0	0

2016 Street Rehabilitation - CIP #4

Ref. No.	Spec No.	Item Description	Map # / Units	Lanius Lane - South Terminus to Hill Crest Road	Larch Avenue - Hamilton Avenue to Belmont Avenue	Springbrook Drive - Corporation Line to Daly Road
			Map #	2	2	1
			Units			
79	644	Transverse/Diagonal Line	Lin. Ft.	0	0	0
80	644	Lane Arrow	Ea.	0	0	0
82	644	Island Marking	Sq. Ft.	0	0	0
83	644	Speed Hump Marking	Ea.	0	0	6
87	1125	Resetting Existing Valve Box, Complete	Ea.	1	0	0
93	1323	Loop Detector Wire, 1 Conductor, No. 14 AWG	Lin. Ft.	0	0	300
95	1328	Loop Detector Pavement Cutting	Lin. Ft.	0	0	110
96	201	Clearing and Grubbing	Lump Sum	0	0	0
97	201	Tree Removed, 18" size	Ea.	0	0	0
98	201	Tree Removed, 48" size	Ea.	0	0	0
99	202	Mailbox Remove and Reset	Ea.	0	0	0
100	202	Landscape Material Removed	Lump Sum	0	0	0
101	202	Wall Removed	Lin. Ft.	0	0	0
102	202	Pavement Removed	Sq. Yds.	0	0	0
103	202	Walk Removed	Sq. Ft.	0	0	0
104	202	Steps Removed	Lin. Ft.	0	0	0
105	202	Railing Removed	Lin. Ft.	0	0	0
106	202	Curb Removed	Lin. Ft.	0	0	0
107	203	Excavation	Cu. Yds.	0	0	0
108	203	Embankment	Cu. Yds.	0	0	0

2016 Street Rehabilitation - CIP #4

Ref. No.	Spec No.	Item Description	Map # / Units	Lanius Lane - South Terminus to Hill Crest Road	Larch Avenue - Hamilton Avenue to Belmont Avenue	Springbrook Drive - Corporation Line to Daly Road
			Map #	2	2	1
			Units			
109	608	5" Concrete Walk, as per Plan	Sq. Ft.	0	0	0
110	608	Curb Ramp	Sq. Ft.	0	0	0
111	608	Detectable Warning, Type F	Sq. Ft.	0	0	0
112	609	Concrete Curb, Type L-1 - Curb Ramp	Lin. Ft.	0	0	0
113	608	Concrete Steps	Lin. Ft.	0	0	0
114	609	Concrete Curb, Type P-5	Lin. Ft.	0	0	0
115	609	Concrete Curb Repair, Type P-5	Lin. Ft.	0	0	0
116	611	Manhole, Adjusted to Grade	Ea.	0	0	0
117	611	Manhole Reconstructed to Grade	Ea.	0	0	0
118	627	Concrete Driveway	Sq. Ft.	0	0	0
119	627	Concrete Driveway, As Per Plan	Sq. Ft.	0	0	0
120	1132	Resetting Existing Curb & Roadway Boxes, Complete	Ea.	0	0	0
121	Special	Gas Street Light, Remove and Store	Ea.	0	0	0
122	Special	Gas Street Light, Straighten Pole	Ea.	0	0	0
123	Special	Gas Street Light, Install Replacement DMI Burners	Ea.	0	0	0
124	Special	Gas Street Light, Paint Pole and Lantern Frame	Ea.	0	0	0
125	Special	Gas Street Light, Reinstall	Ea.	0	0	0

APPENDIX C
1/2

INSTRUCTIONS AND GUIDELINES FOR REQUESTING TEMPORARY PARKING RESTRICTIONS

city of CINCINNATI POLICE

This information is provided to assist you in requesting authorization to temporarily restrict parking within the City of Cincinnati. It is imperative that you **read**, **understand**, and **follow** the steps outlined. Failure to adhere to these instructions may result in the requested restriction either being denied and/or unenforceable.

1. BEFORE SUBMITTING YOUR REQUEST FORM:

a) You MUST have either:

- A valid permit from the City Department of Transportation & Engineering (DOTE), Right-of-Way Section, or
- An approved CPD event application (**Form 700**, **Form 710**, or **Form 720**) through the Special Events Unit

A copy of one of the above items will be attached to the parking restriction request form you complete at the police district. Requests will not be accepted without a valid DOTE issued permit or approved CPD event form.

b) Generally, the **only** locations where parking may be temporarily restricted are those where parking is already **legal.** Placement of parking restriction signs in any **"No parking"** zone, e.g. a "Bus stop", "Taxi Stand", is prohibited. Parking restrictions for a "6am-9am zone" or "3pm-6pm zone" may only be requested if the request does **NOT** interfere with these restricted times.

c) Requests for temporary parking restrictions **must be made at the police district where the restriction is geographically located.** If you are not certain of the police district, contact any police district for assistance in verifying the location. This will save you unnecessary inconvenience.

d) The Parking Restriction Request must be submitted and approved far enough in advance to comply with minimum time requirements for placing the signs/meter bags, or the request may be unenforceable. Also, do not place signs/meter bags in advance of the maximum allowed hours:

- To temporarily restrict parking in an area that is not otherwise restricted, your request form must be submitted /approved, AND the restriction sign(s) posted a **minimum of 24 hours in advance, but not more than 36 hours in advance. IF** a vehicle displaying the proper handicap markings is parked within the restriction, contact the police district desk officer for further assistance.
- To temporarily restrict parking in metered parking spaces only, your request form must be submitted/ approved, AND the restriction sign(s)/meter bag(s) posted a **minimum of 14 hours in advance, but not more than 24 hours in advance.**

Due to the differences in the timeframes outlined above, it is crucial you know the type of zone, and the exact address (or parking meter numbers), where you are requesting a temporary parking restriction.

2. SUBMITTING THE REQUEST FORM:

a) You are required to go to the police district where the restriction is geographically located.

b) The Parking Restriction Request Form requires the following:

- Attaching a copy of the valid permit issued by DOTE or the approved CPD event application
- The reason for the temporary parking restriction request
- The date(s) and specific times (beginning and ending) the restriction will be in effect
- The type of parking area / zone to be restricted
- Specific address(es) and/or parking meter numbers to be restricted
- The date and time the signs/meter bags will be posted, and by whom
- A telephone number you may be reached at, if necessary

c) You must sign the Parking Restriction Request Form, acknowledging you have read and understand the requirements and limitations of the request you are making.

d) The desk officer will review the form for accuracy / completeness, attach a copy of your valid DOTE permit or approved CPD event application, and answer any questions.

e) You will be provided with an appropriate quantity of temporary parking restriction signs and parking meter bags, if needed.

3. POSTING PARKING RESTRICTION SIGNS / METER BAGS:

a) Post all signs in an elevated, conspicuous / visible manner, on an existing post, pole, temporary stake or post of your own (parking meters should have the restriction sign attached directly to the meter head).

b) Parking restriction signs should be placed **no farther than 40' feet apart** (approximately two car lengths), or the restriction may be unenforceable.

c) If applicable, place parking meter bags on the parking meters.

d) Parking restriction signs with specific times and dates **must** accompany parking meter bags, or the bags will be removed and enforcement will **not** be taken.

e) Parking meters bags must be securely placed; enforcement will **not** be taken if a meter bag is not in place.

f) When you have completed posting the signs/meter bags, you **must** contact the respective police district and notify the desk officer that they have been posted:

☐ DISTRICT ONE	513-352-3505	☐ DISTRICT TWO	513-979-4400
☐ DISTRICT THREE	513-263-8300	☐ DISTRICT FOUR	513-569-8600
☐ DISTRICT FIVE	513-569-8500	☐ CENTRAL BUSINESS SECTION	513-352-5420

The minimum time requirement begins when the police district desk officer receives your notification

g) You may go to the police district in-person to complete your notification. Enforcement action **cannot be taken** until the minimum required hours have elapsed from the time you make your notification.

4. FOLLOWUP RESPONSIBILITIES

a) It is your responsibility to monitor the restriction signs /meter bags to ensure they remain in place. If they are missing due to adverse weather or acts of mischief, they may not be enforceable.

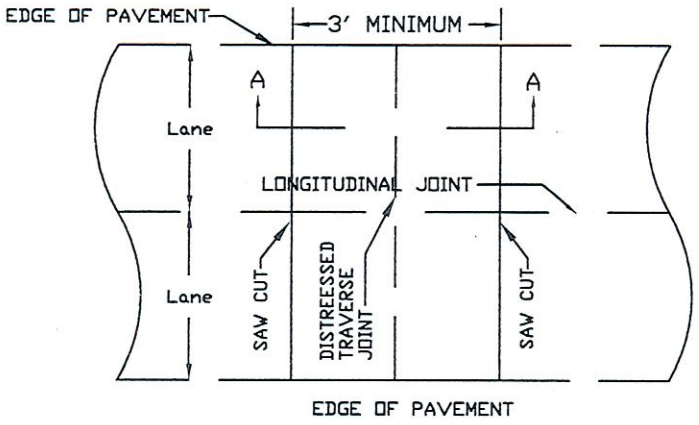
b) All signs and meter bags **must** be taken down and destroyed upon completion, or future requests may be denied.

UNLESS SPECIFICALLY INDICATED ON YOUR VALID DOTE PERMIT OR APPROVED CPD EVENT APPLICATION, PARKING DURING RESTRICTED "RUSH HOURS" (6AM-9AM or 3PM-6PM) IS NOT AUTHORIZED.

EMERGENCY CONSTRUCTION/REPAIRS TO UTILITIES OR OTHER EXIGENT CIRCUMSTANCES MUST BE APPROVED BY A DISTRICT SUPERVISOR, AND THE PROPER DOTE PERMIT MUST OBTAINED AS SOON AS POSSIBLE.

Direct questions pertaining to Right-of-Way permits to Mr. Keith Pettit,
DEPARTMENT OF TRANSPORTATION & ENGINEERING, RIGHT-OF-WAY SECTION
City Hall; 801 Plum Street, Suite #450, Cincinnati, Ohio 45202
Telephone: 513-352-3463, Fax: 513-352-5397.
Email: keith.pettit@cincinnati-oh.gov

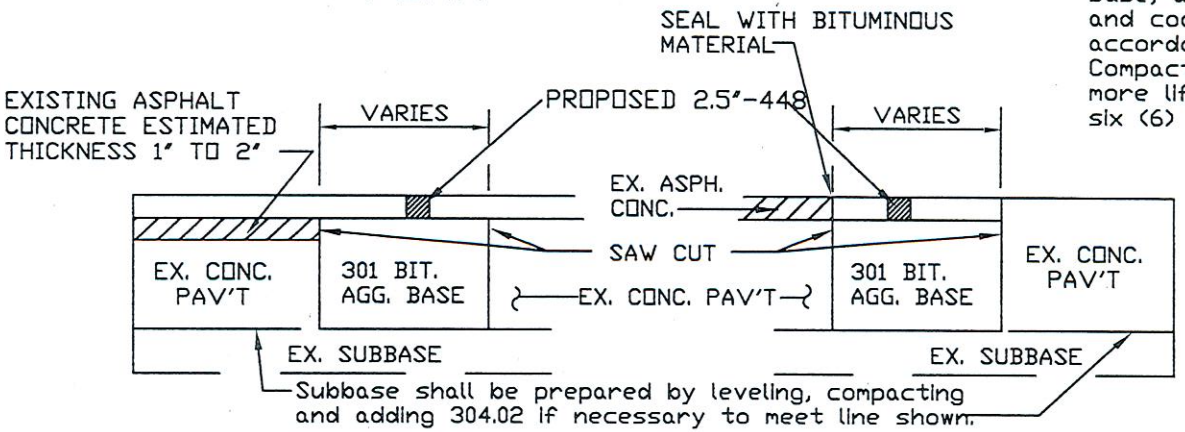
HALF OR FULL WIDTH TRANSVERSE JOINT REPAIR



PLAN

These details are for the repair of deteriorated transverse pavement joints and other small deteriorated areas. The locations and size of the repairs shall be at the direction of the Engineers. When half width replacements are used, the longitudinal joints shall be sawed full depth and any bars or hook bolts encountered shall be cut off flush with the existing pavement. In repair areas where existing curb is to remain, the pavement shall be saw cut full depth parallel to the curb to prevent damage to the curb. Any damage to the existing curb shall be repaired at the contractor's expense as directed by the Engineer.

Saw existing pavement full depth on each side of deteriorated joint and cut existing dowels and reinforcing before planing. Prior to placing the Bituminous Aggregate Base, all vertical faces shall be cleaned and coated with bituminous material in accordance with 401.12. Placement & Compaction of 301 shall be in two or more lifts with a maximum lift of six (6) inches.



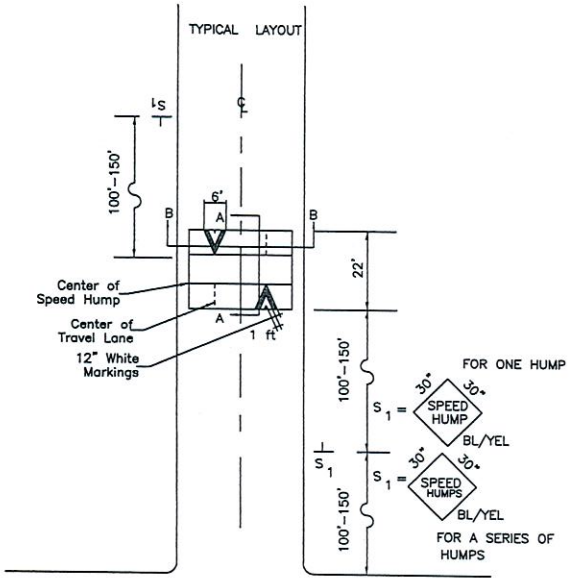
RESURFACING OVER REPAIR AREA

SPOT REPAIR AREA

SECTION A-A

FULL DEPTH ASPHALT REPAIR IN CONCRETE PAVEMENT

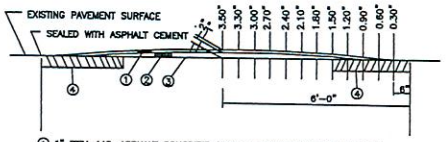
APPENDIX D
1/11



SIGN/ PAINT DETAIL
NOT TO SCALE

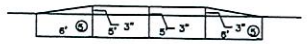
ASPHALT

SECTION A–A (Slope Detail)



① 1" ITEM 448, ASPHALT CONCRETE, TYPE 1, PG64–22, MEDIUM TRAFFIC
② 1/4" TO 2" ITEM 448 ASPHALT CONCRETE, TYPE 1, PG64–22, MEDIUM TRAFFIC
③ ITEM 407 TACK COAT @ 0.10 GAL/SQ YD RC–250, SS–1, SS–1h, MS–2 OR RS–1
④ WEARING COURSE REMOVED, BUTT JOINT TYPE

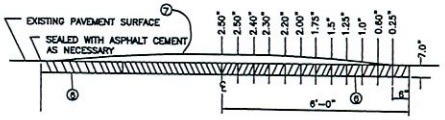
SECTION A–A (22')



⑤ SAME PROFILE AS 6' SECTION ABOVE

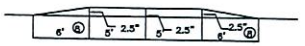
CONCRETE

SECTION A–A (Slope Detail)



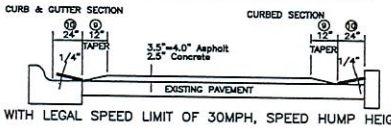
⑥ WEARING COURSE REMOVED, 7.0" CONCRETE PAD
⑦ CONSTRUCTION JOINTS IN/ON THE HUMPS SHOULD BE LONGITUDINAL/ PARALLEL TO THE CURBS

SECTION A–A (22')



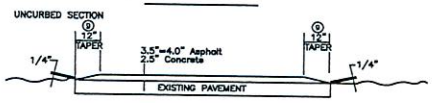
⑧ SAME PROFILE AS 6' SECTION ABOVE

SECTION B–B (ASPHALT OR CONCRETE)



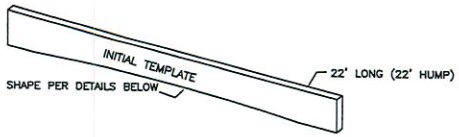
STREETS WITH LEGAL SPEED LIMIT OF 30MPH, SPEED HUMP HEIGHT IS 3"

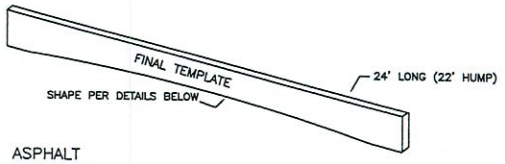
SECTION B–B



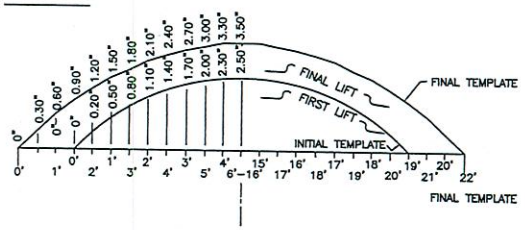
⑨ 12" MINIMUM TO 24" MAXIMUM
⑩ 24" MINIMUM TO 36" MAXIMUM

TEMPLATE/SCREED DETAILS



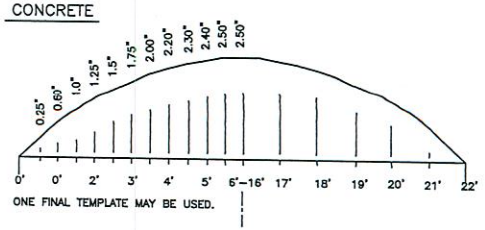


ASPHALT



USING TWO TEMPLATES, THE ASPHALT SHALL BE HAND LAID IN TWO LIFTS AND HOT ROLLED OVER A TACK COAT.

CONCRETE

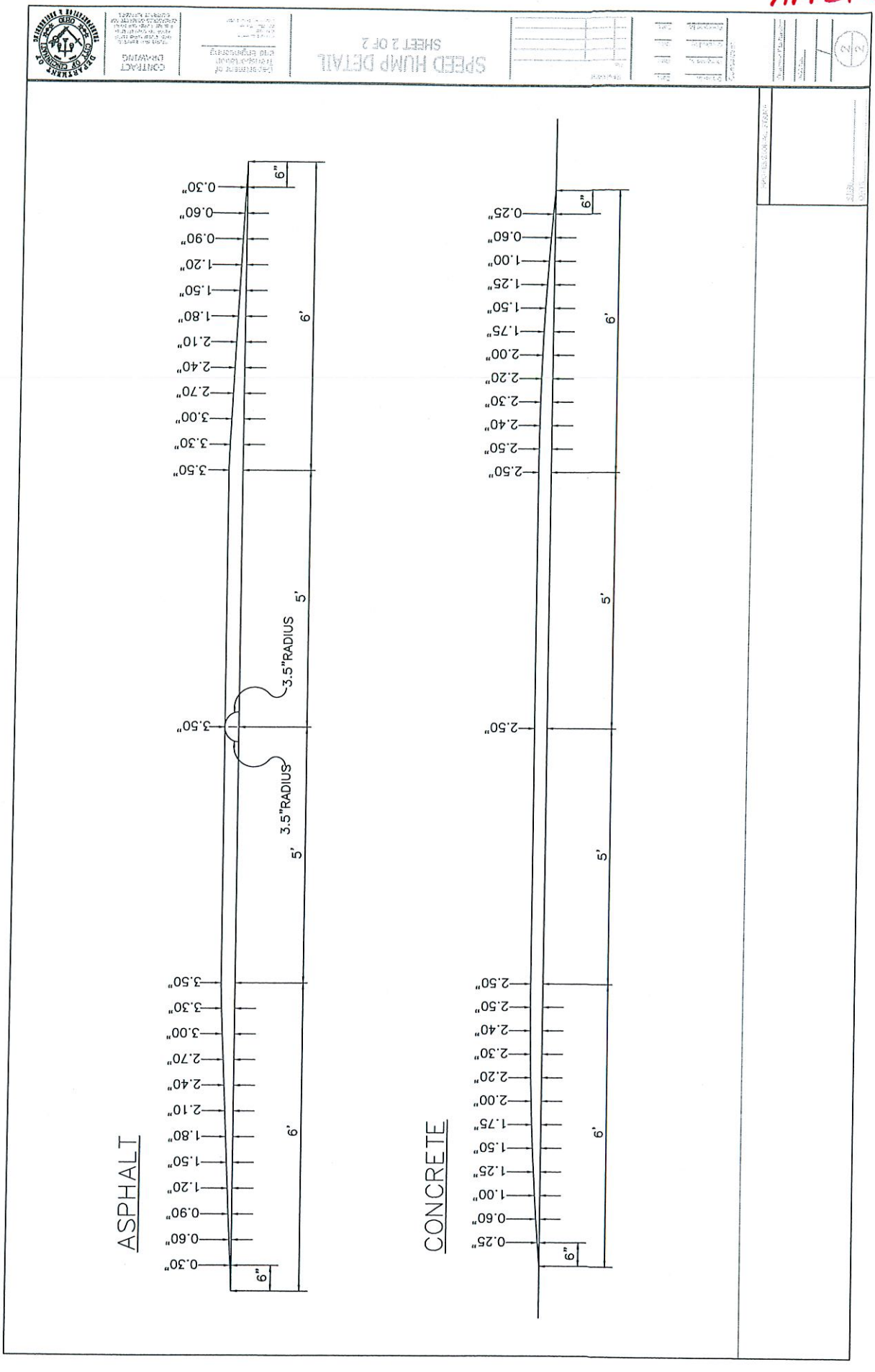


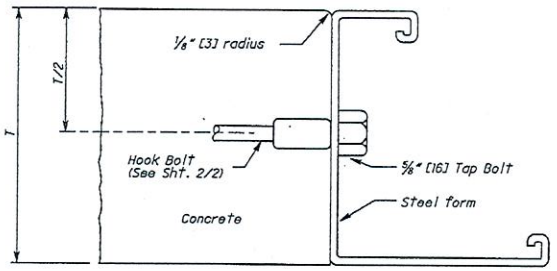
ONE FINAL TEMPLATE MAY BE USED.

SPEED HUMP DETAIL
SHEET 1 OF 2

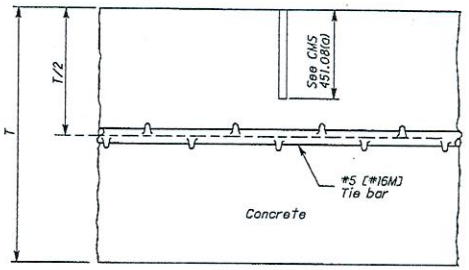
APPENDIX D
2/11

APPENDIX D
3/11





ACCEPTABLE METHOD OF FORMING JOINT



SAWED JOINT

NOTES

GENERAL: Longitudinal joints shall be used when specified on the Typical section and shall be constructed as shown on this drawing in Items 451 and 452 Pavement and Item 305 Base.

The joint shall be on the centerline of the pavement unless otherwise shown on the plans. Where the pavement width exceeds 16' [5.0 m], an additional longitudinal joint shall be introduced into the jointing details as directed by the Engineer.

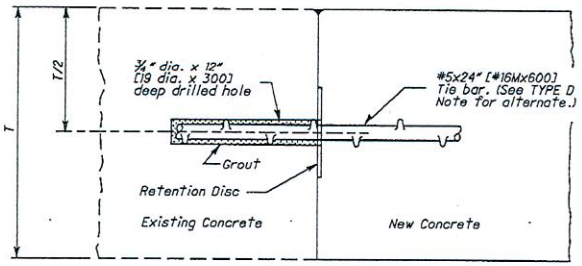
Tie bars shall be #5 [#16M] deformed bars. A satisfactory device shall be used to hold the tie bars in proper position or they may be installed by a mechanical installing device. Tie bars shall be centered on the longitudinal joint as nearly as practical.

BUTT JOINT: The longitudinal joint between adjoining slabs poured in separate operations shall be a butt joint with hook bolts or tie bars, unless otherwise shown on the plans. Bent tie bars shall not be permitted.

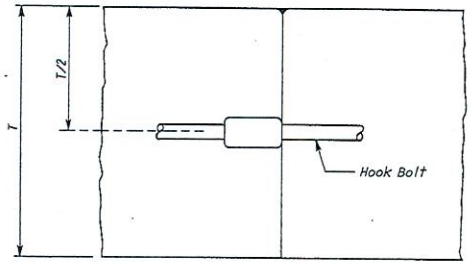
TYPE D (DRILLED TIED LONGITUDINAL) JOINT: Type D joints shall be constructed in accordance with CMS 255.05. The nylon or plastic retention disc shall be clear or opaque white in color. Grout shall meet the requirements of CMS 255.02. ⅝" [16] expansion anchors, FF-S-325, Group VIII, Type 1 or Group II Type 4, Class 1 may be used lieu of the #5x24" [#16Mx600] deformed bar and shall be installed according to the manufacturor's recommendations.

The use of self drilling expansion shield anchors, FF-S-325, Group III, Type 1 (a) and (c) shall not be permitted.

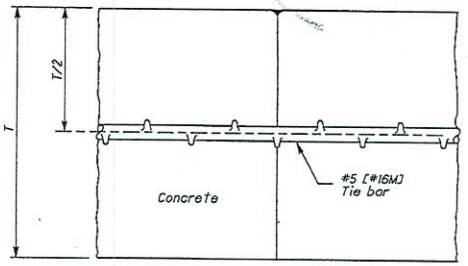
See Sheet 2/2 for additional details.



TYPE D (DRILLED TIED LONGITUDINAL) JOINT



BUTT JOINT
W/ HOOK BOLT



BUTT JOINT
W/ TIE BAR

THIS DRAWING REPLACES BP-2.1 DATED 7-16-04.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

PAVEMENT ENGINEERING ADMINISTRATOR — DATE 7-18-08

ALL METRIC DIMENSIONS (IN BRACKETS [ ]) ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

PAVEMENT DESIGN ENGR: D. MILLER

OFFICE OF ROADWAY ENGINEERING

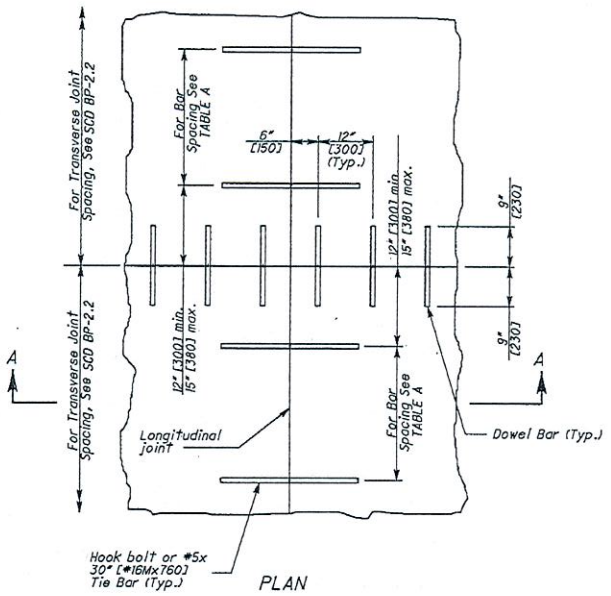
STANDARD ROADWAY CONSTRUCTION DRAWING

LONGITUDINAL PAVEMENT JOINTS

SCD NUMBER BP-2.1

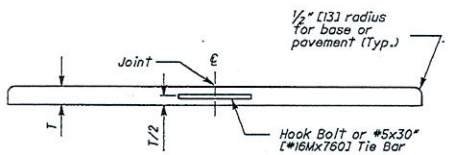
1 / 2

APPENDIX D 4/11



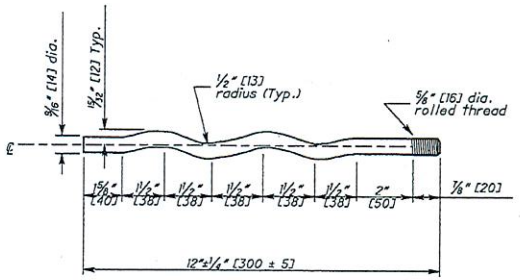
PLAN

TABLE A			
Thickness of Pavement	Transverse Joint Spacing	Number of Tie Bars per Slab	Max. spacing between Tie Bars
10" [250] or less	15' [4.6 m]	7	26" [660]
	21' [6.5 m]	10	26" [660]
Greater than 10" [250]	15' [4.6 m]	9	20" [508]
	21' [6.5 m]	13	20" [508]

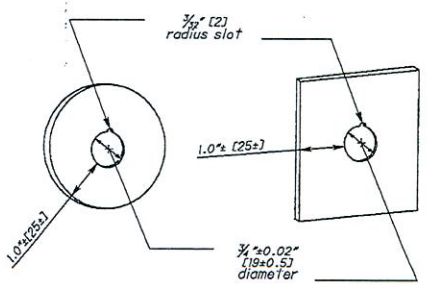


SECTION A-A

TIE BAR OR HOOK BOLT SPACING

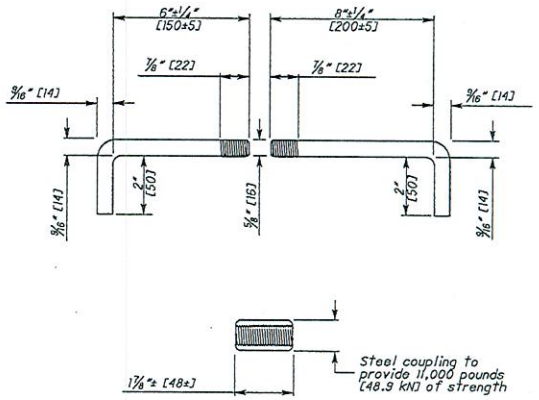


HOOK BOLT ALTERNATE



NYLON OR PLASTIC GROUT RETENTION DISCS FOR DOWEL/TIE BARS

(1/16" [1.6] min. thick)



HOOK BOLT

NOTES

EDGING: Edge joints with a thin metal edger having a radius of 1/8" [3]. Any impression left in the surface of the pavement by the flat part of the edging tool shall be eliminated.

In lieu of the above method the longitudinal joint may be constructed in accordance with CMS 451.08(a).

HOOK BOLTS: Threaded hook bolts and alternates shall be turned to a tight fit when installed in couplings. Ensure the coupling is located on the same side of the joint as the shorter (6" +/-1/4" [150 +/-5] hook bolt.

METAL STRENGTH: Tie bars, hook bolts assemblies, and the hook bolt alternate shall have a minimum strenght of 11,000 pounds [48.9 kN].

SPACING: Tie bars shall not be located within 12" [300] of any transverse joint.

THIS DRAWING REPLACES BP-2.1 DATED 7-16-04.

STANDARD ROADWAY CONSTRUCTION DRAWING

LONGITUDINAL PAVEMENT JOINTS

SCD NUMBER BP-2.1

2 / 2

OFFICE OF ROADWAY ENGINEERING

ALL METRIC DIMENSIONS (IN BRACKETS [ ]) ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

PAVEMENT DESIGN ENGR. D. MILLER

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
PAVEMENT ENGINEERING ADMINISTRATOR

7-18-08
DATE

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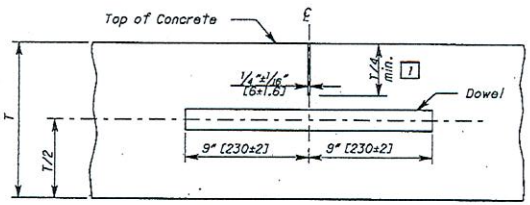
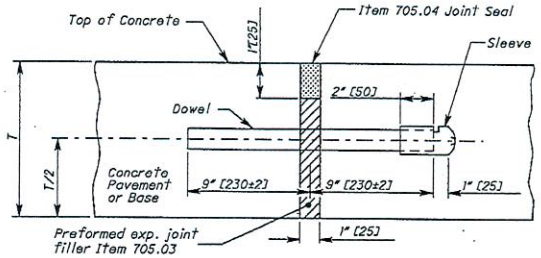
APPENDIX D 5/11



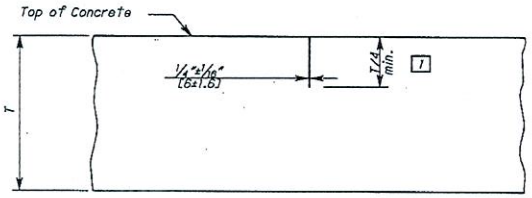
ITEM 451, 452 & 305



SECTION THROUGH EXP. JOINT

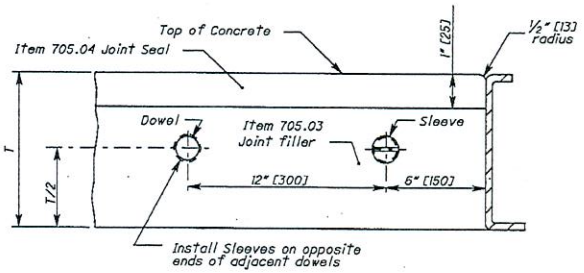
LEGEND

7 Where T > 10" [255], the sawcut depth shall be T/3. If using early entry saws, cut joints 2¼" to 2½" [56 to 63] deep and ⅛" [3] wide.



ITEM 452 and 305
(for shoulders, alleys, driveways, etc.)

CONTRACTION JOINTS SECTIONS



SIDE ELEVATION OF EXP. JOINT
(through Concrete Pavement or Base)

EXPANSION JOINTS

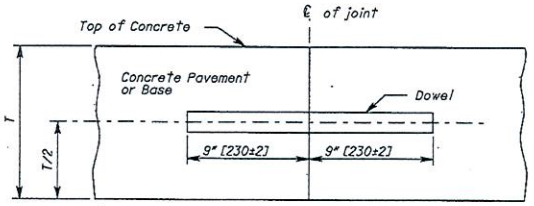
NOTES

GENERAL: Notes and details shown on this drawing shall be considered in conjunction with and supplemental to the pertinent specifications for portland cement concrete pavement and bases, and related incidentals.

JOINT COMPONENTS: This drawing is intended for use with a uniform depth pavement. When the project involves the placing of variable depth pavement, the joint components shall be held in place in accordance with the method shown in the plans or as approved by the Engineer.

CONTRACTION JOINTS: Contraction joints in Items 452 and 305 shall not be dowelled in alleys, private drives, or commercial drives.

Contraction joints of the type specified shall be spaced in accordance with the CONTRACTION JOINT SPACING Table.



SECTION THROUGH CONSTRUCTION JOINT

CONSTRUCTION JOINT

CONTRACTION JOINT SPACING	
Types of Pavement or Base	Maximum Spacing Between Joints
Item 451 Reinforced Concrete Pavement	21' [6.5 m]
Item 452 Non-Reinforced Concrete Pavement	15' [4.6 m]
Item 305 Concrete Base	15' [4.6 m]

THIS SHEET REPLACES BP-2.2 DATED 7-16-04.

STANDARD ROADWAY CONSTRUCTION DRAWING

TRANSVERSE PAVEMENT JOINTS

OFFICE OF ROADWAY ENGINEERING

ALL METRIC DIMENSIONS (IN BRACKETS [ ]) ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

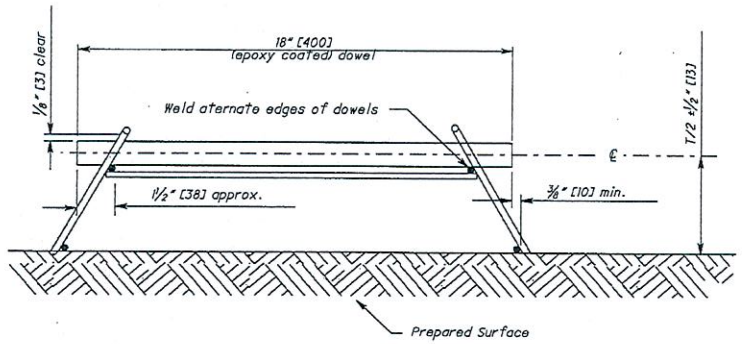
PAVEMENT DESIGN ENGR. D. Miller

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
PAVEMENT ENGINEERING ADMINISTRATOR
7-18-08
DATE

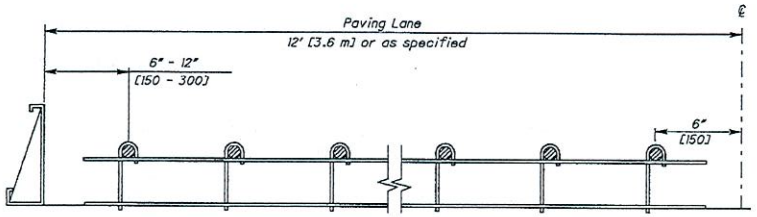
SCD NUMBER BP-2.2

1 / 2

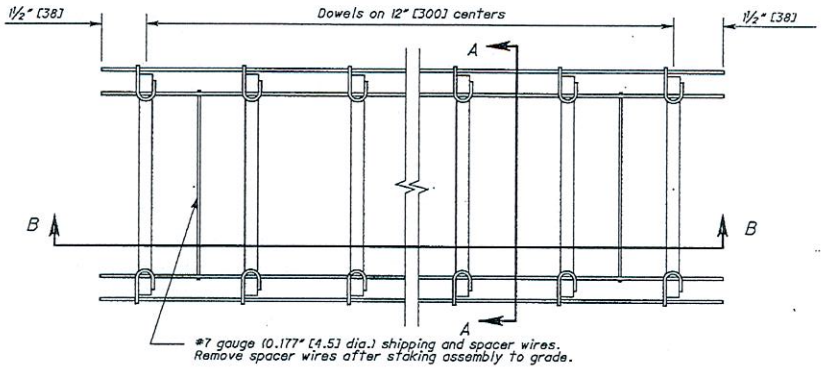
APPENDIX D 11/19



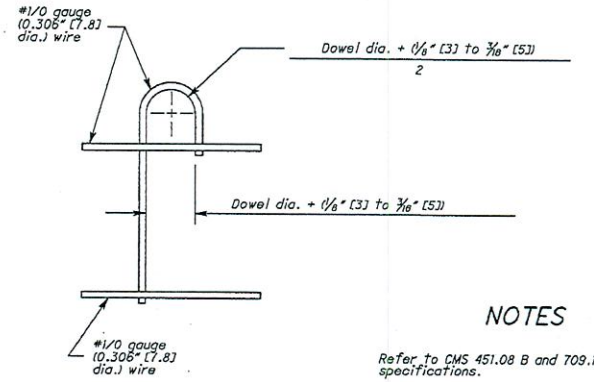
SECTION A-A



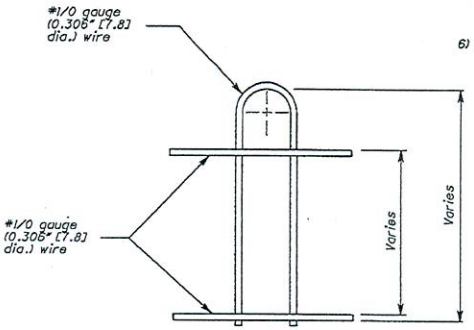
SECTION B-B



PLAN VIEW



J-LEG DETAIL (ALTERNATE)



U-LEG DETAIL

NOTES

Refer to CMS 451.08 B and 709.13 for dowel specifications.

1) Wire sizes shown are minimum required.
2) All wire intersections are to be welded.
3) Stakes typically applied at working ends of dowel.
4) TOLERANCES:
5) A) ±¼" per foot [±20 mm per meter] unless otherwise specified.
   B) Centerline of individual dowels shall be parallel to each other, the surface and the centerline of the slab.
   C) On centers should be ±½" [±13].
   D) Dowels should be placed at mid-depth of slab.
6) J-Leg or U-Leg to be installed on inside or outside of subframe.

THIS SHEET REPLACES BP-2.2 DATED 7-18-04.

STANDARD ROADWAY CONSTRUCTION DRAWING

TRANSVERSE PAVEMENT JOINTS

OFFICE OF ROADWAY ENGINEERING

ALL METRIC DIMENSIONS (IN BRACKETS [ ]) ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

PAVEMENT DESIGN ENGR. D. Miller

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
PAVEMENT ENGINEERING ADMINISTRATOR
7-18-08
DATE

SCD NUMBER BP-2.2

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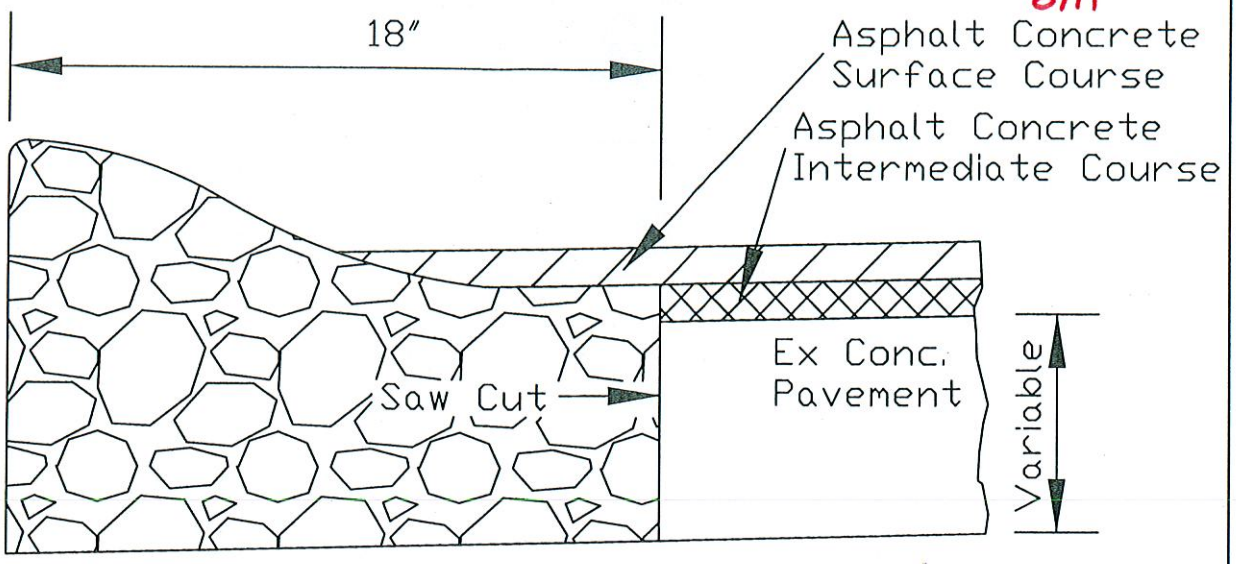
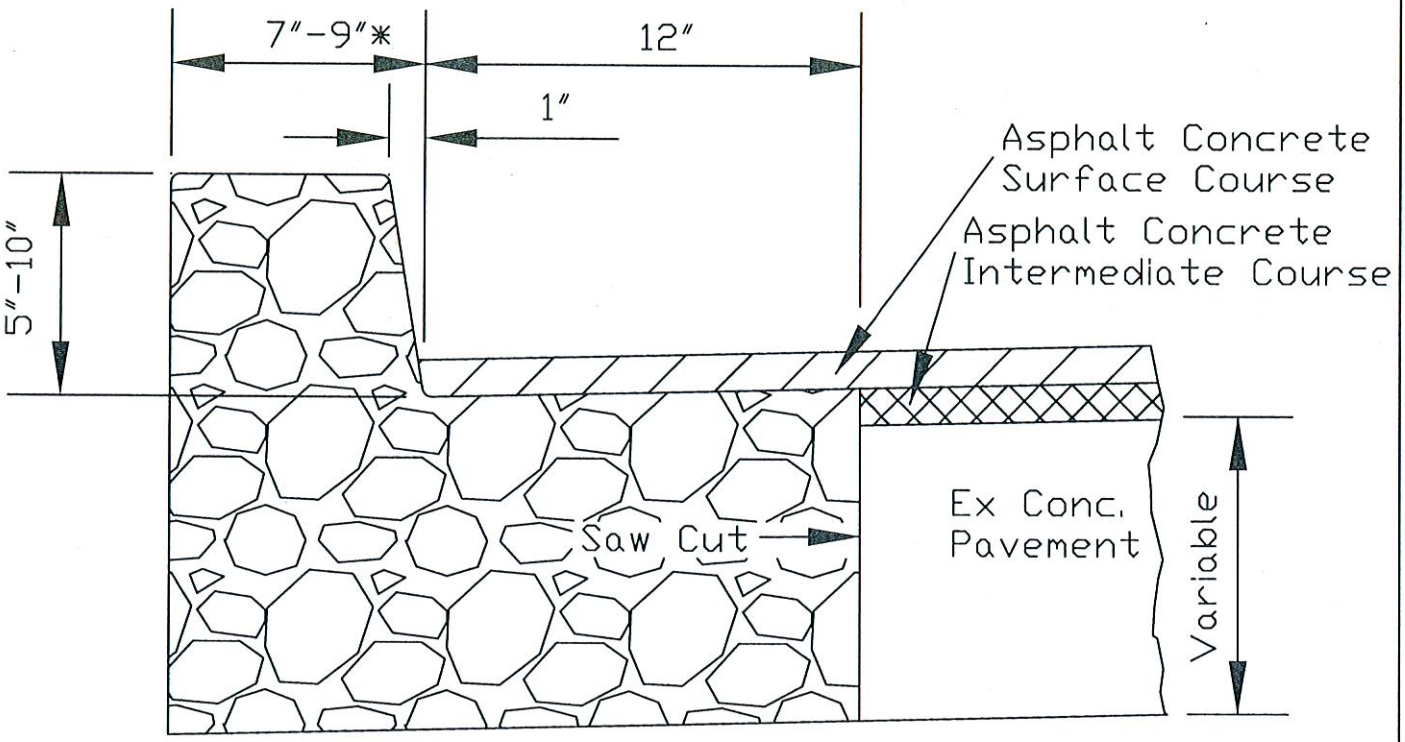
APPENDIX D
7/11

APPENDIX D
8/11



TYPE R-5



TYPE P-5

Special care shall be taken during construction to obtain maximum compaction of bituminous concrete in gutters.
* 9″ only on radii & circulars

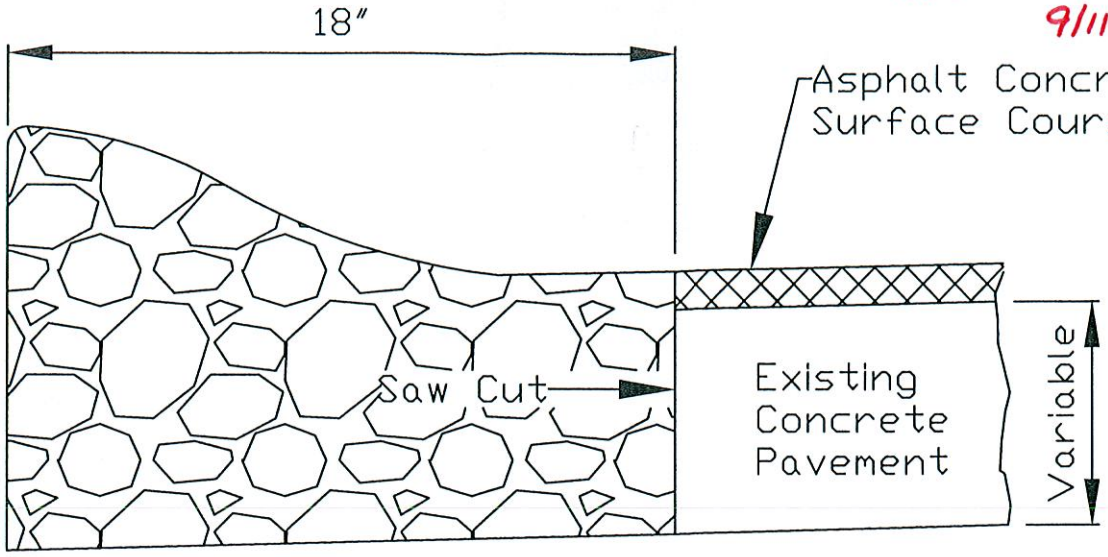
NOT TO SCALE

CONCRETE CURB REPAIR

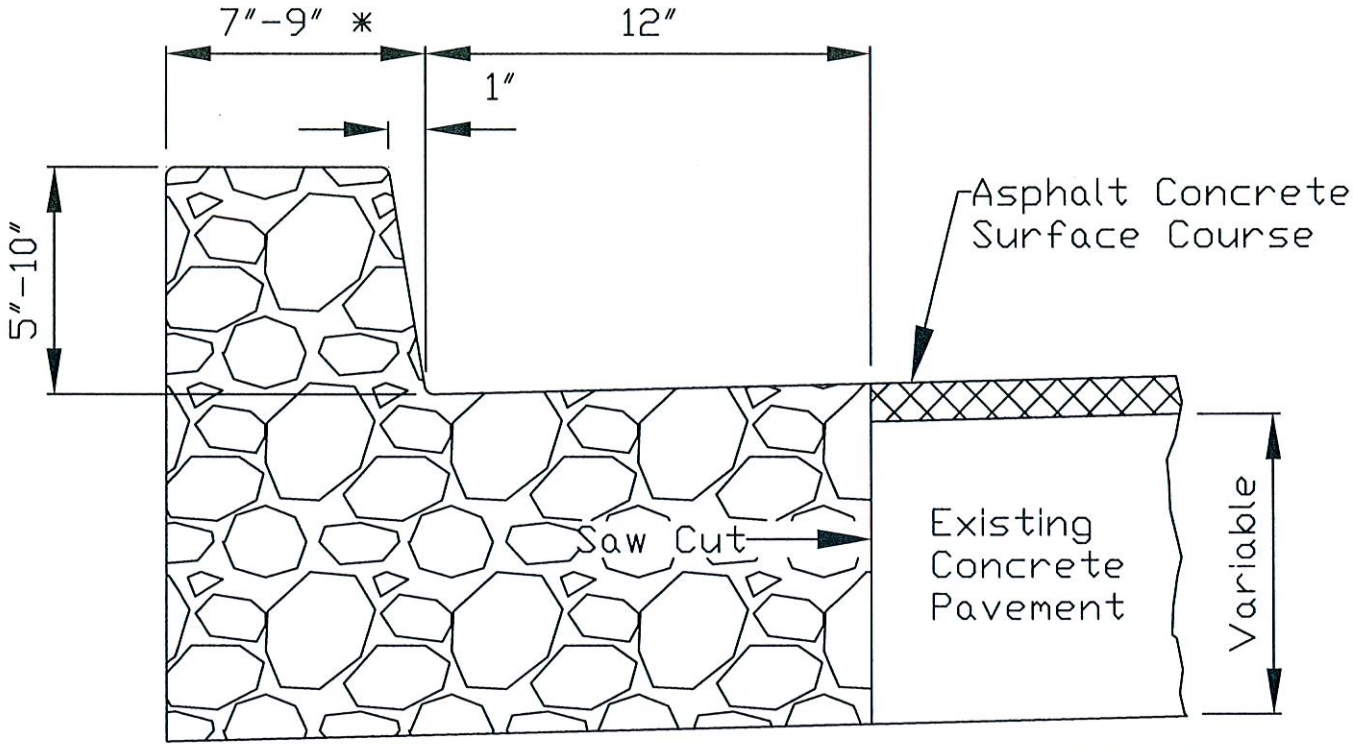
STREET REHABILITATION DETAIL DRAWING

JANUARY, 2007

APPENDIX D
9/11



TYPE R-5



TYPE P-5

Take special care during construction to obtain maximum compaction of asphalt concrete along curb line.

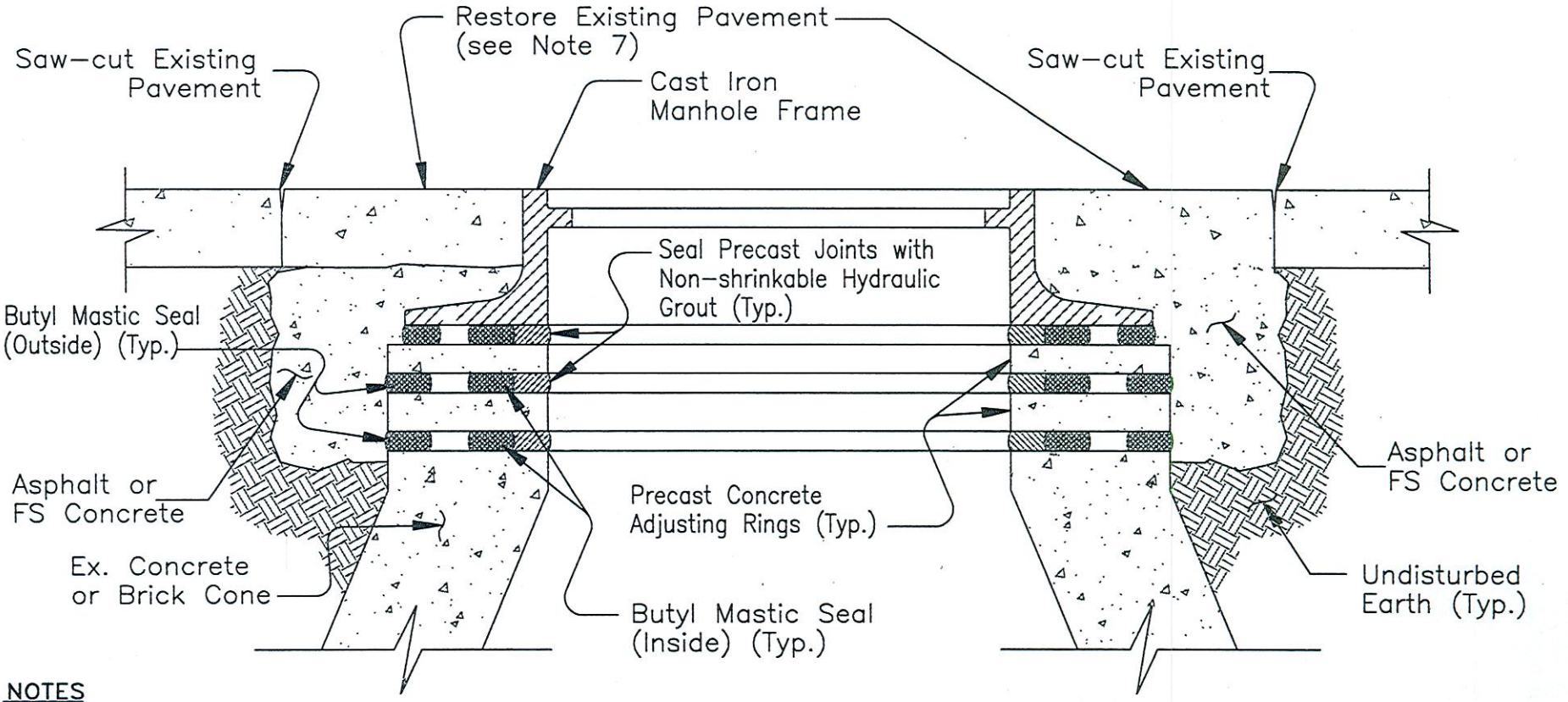
* 9″ only on radii and circulars

NOT TO SCALE

CONCRETE CURB REPAIR (EXPOSED GUTTER PLATE)

STREET REHABILITATION DETAIL DRAWING

JANUARY 2013



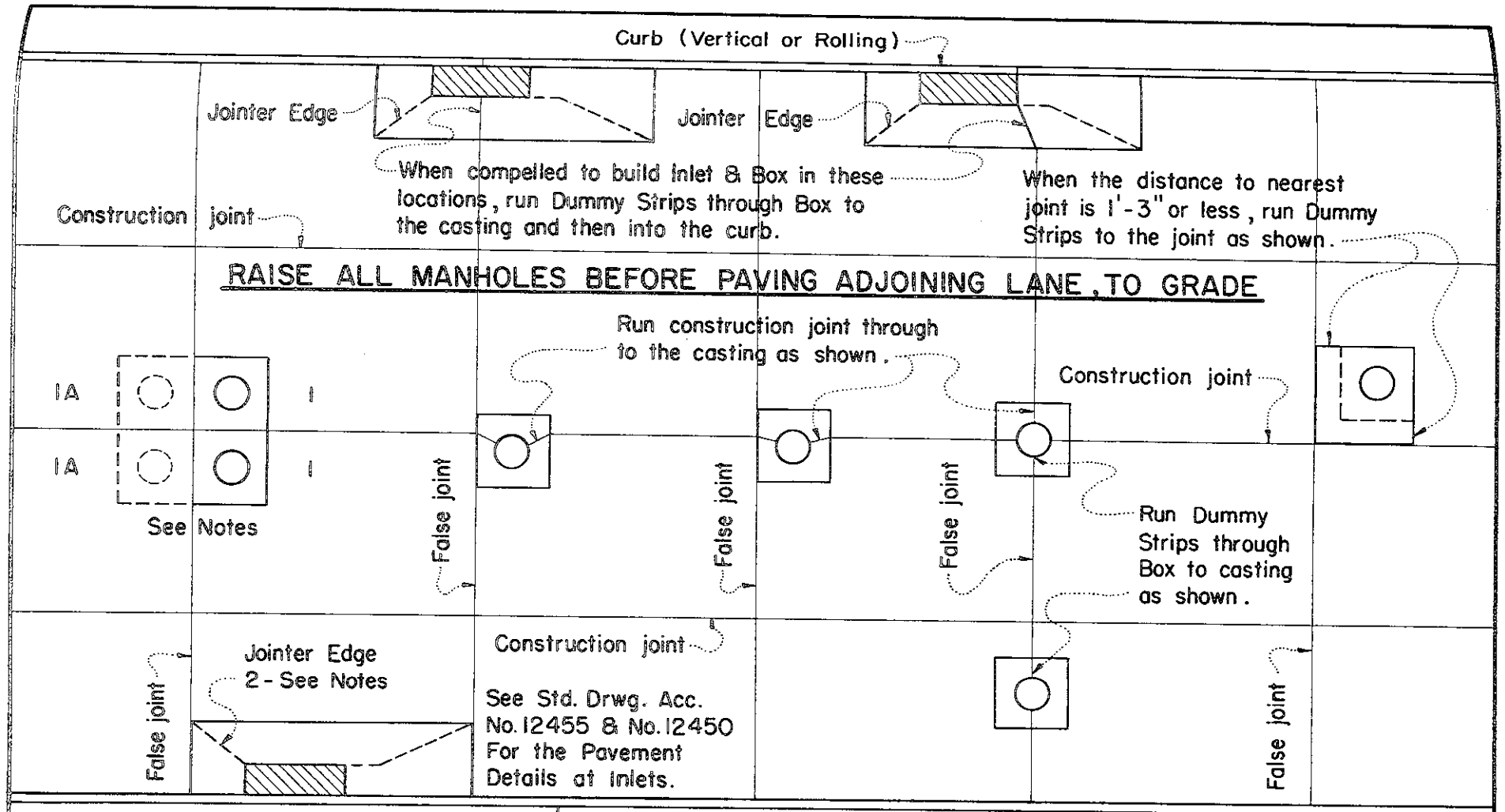
NOTES

1. All manholes adjusted with Concrete Rings prior to Machine Paving shall be sawcut full–depth and square cut.
2. Asphalt or Fast–set concrete shall be used from bottom of cut to existing street pavement.
3. All manhole frames and covers, other than standard, shall be replaced with standard castings (Acc. No. 49005).
4. Adjusting Rings shall have a minimum of 1 – #3 continuous reinforcing bar in center.
5. Butyl Mastic Seal shall be "CONSEAL" or approved equal.
6. Seams in Outside and Inside Butyl Mastic Seals shall be offset by 180°.
7. Pavement shall be restored as detailed in the Special Provisions using either the "Compacted 301 Asphalt Concrete Base" method or the "Fast–setting Portland Cement Concrete" method.
8. Wedge raised casting after adjustment work with compacted hot–mix asphalt. Asphalt wedge shall have a minimum diameter of 8 feet around the casting, or as directed by the Engineer.

SEWER MANHOLE ADJUSTMENT
WITH PRECAST CONCRETE RING & MORTAR
STREET REHABILITATION DETAIL DRAWING

NO SCALE DATE: FEB. 2003

APPENDIX D
10/11



Notes:

1 & 1A are ideal locations for Manhole & Box.
2 is the ideal location for Inlet & Box.
1 & 2 is the ideal relative location of MH & Inlet.
1A & 2 is the alternate ideal relative location of MH & Inlet.

Acc. No. 20276

CITY OF CINCINNATI
DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING

STANDARD JOINTING DETAILS FOR ALL MANHOLES AND INLETS

SCALE: $\frac{1}{8}$" = 1'

AUG, 1962

APPROVED A O Bird
CITY ENGINEER

APPENDIX D
IIII

2016 STREET REHABILITATION – CIP #4
CURB RAMP MAPS

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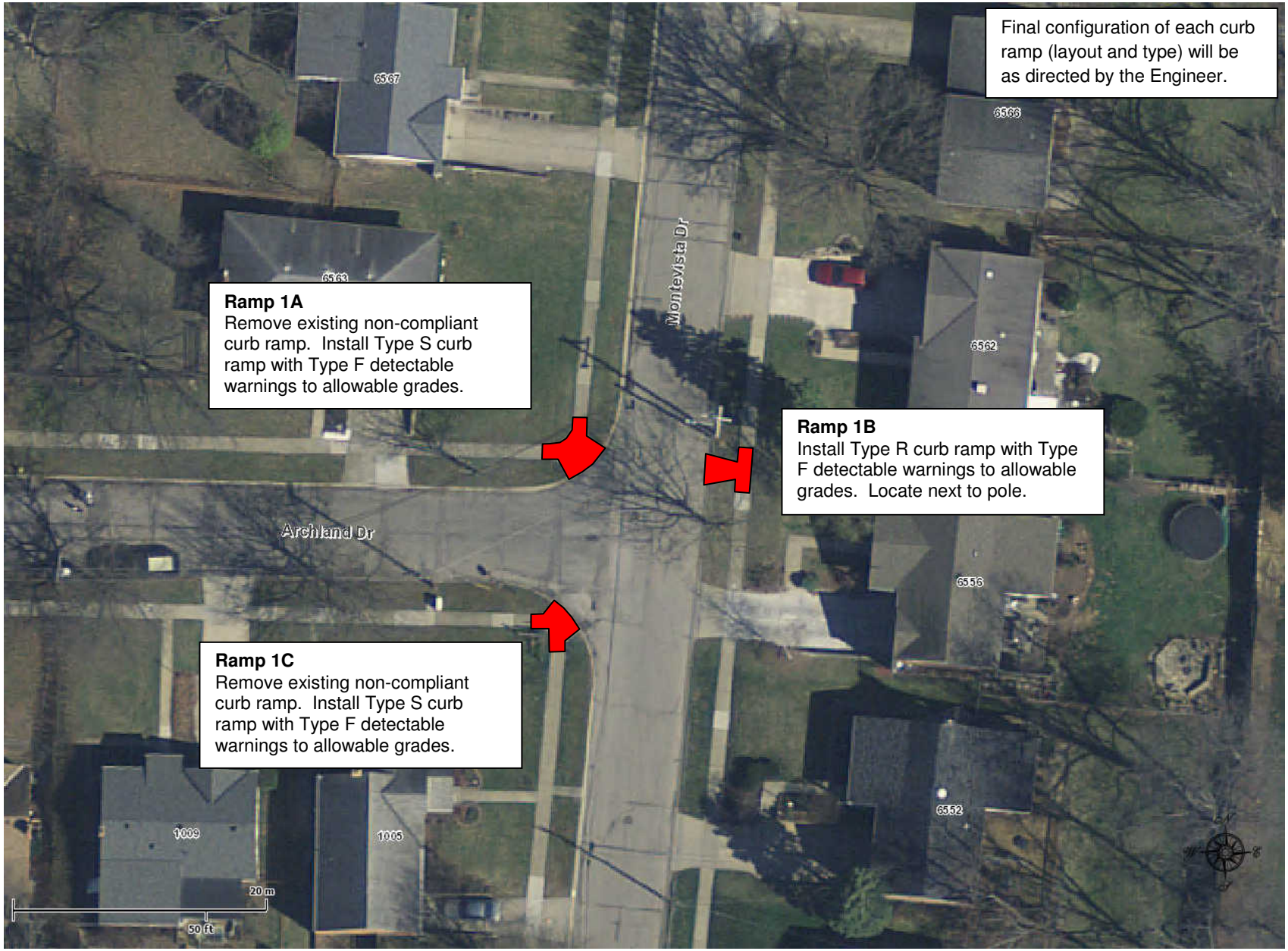
The curb ramps at the above intersections (Bold/Underline) will be completed as part of this project, unless otherwise directed by the Engineer.

2016 STREET REHABILITATION – CIP #4
CURB RAMP MAPS



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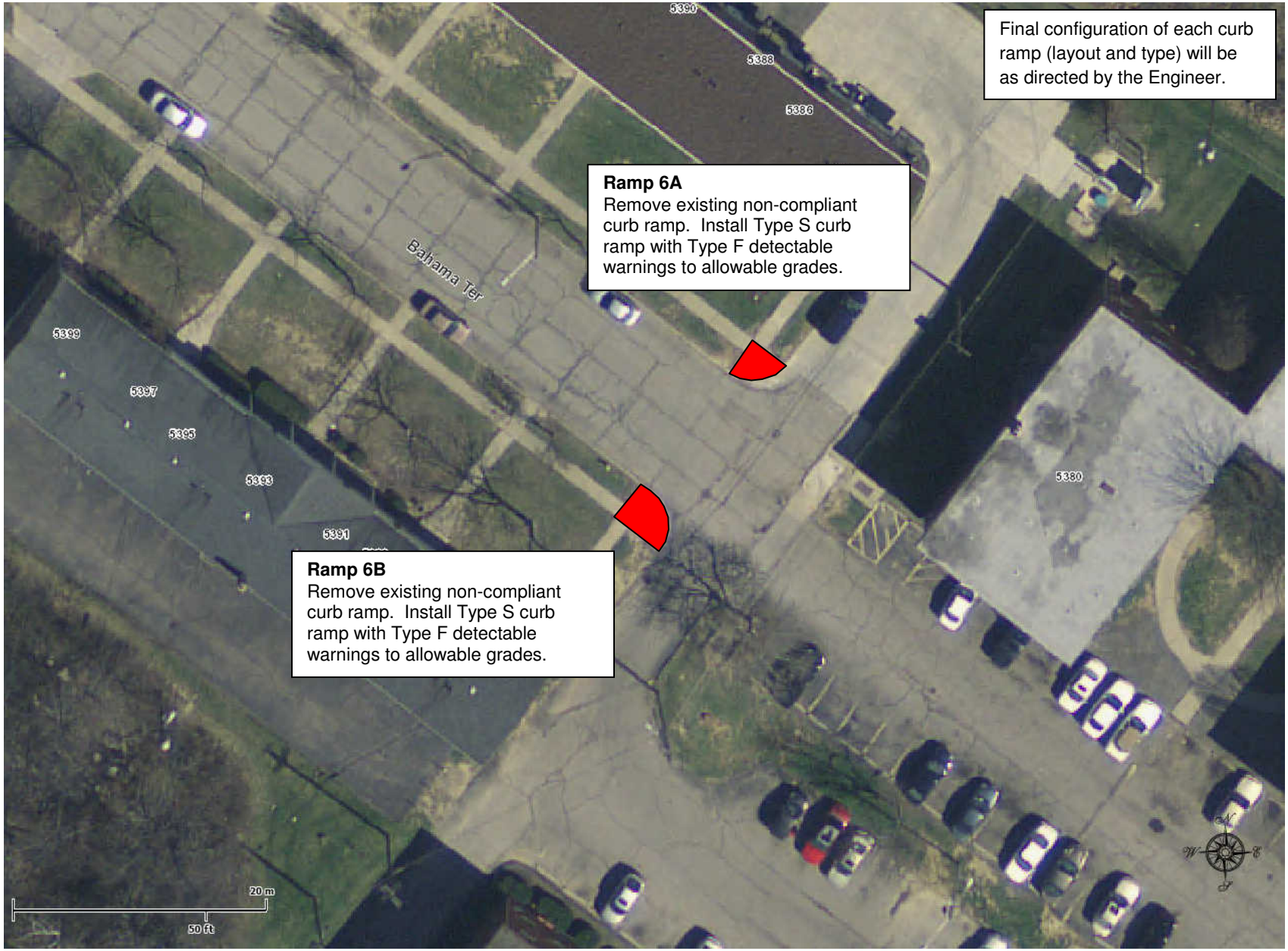

2016 STREET REHABILITATION – CIP #4
CURB RAMP MAPS

Ramps 7A, 7B & 7C
Ramps slated for upgrade through the Colerain Avenue Rehabilitation (SCIP) project. Coordinate construction activities and schedule with other project contractor.

2016 STREET REHABILITATION – CIP #4
CURB RAMP MAPS

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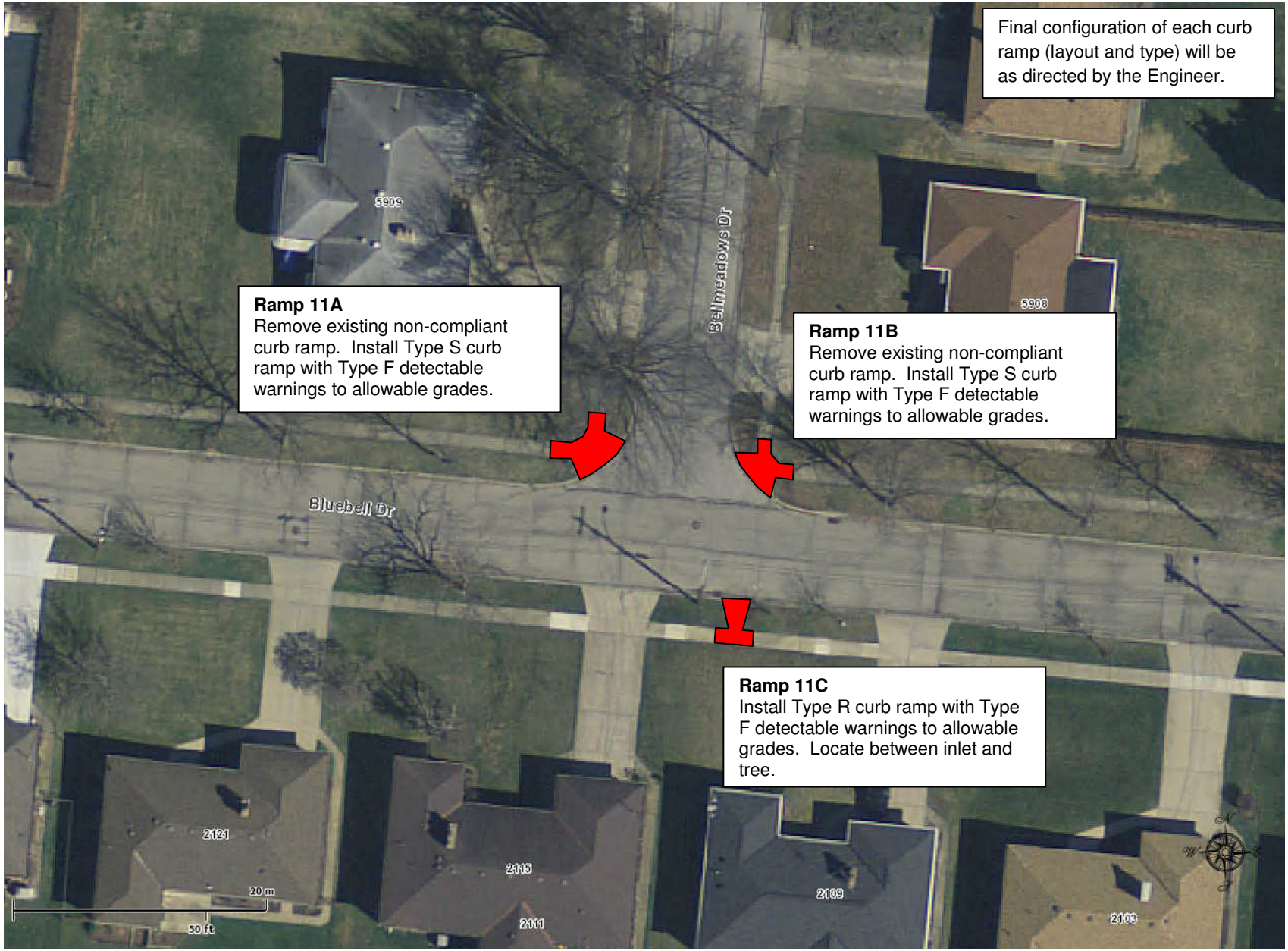

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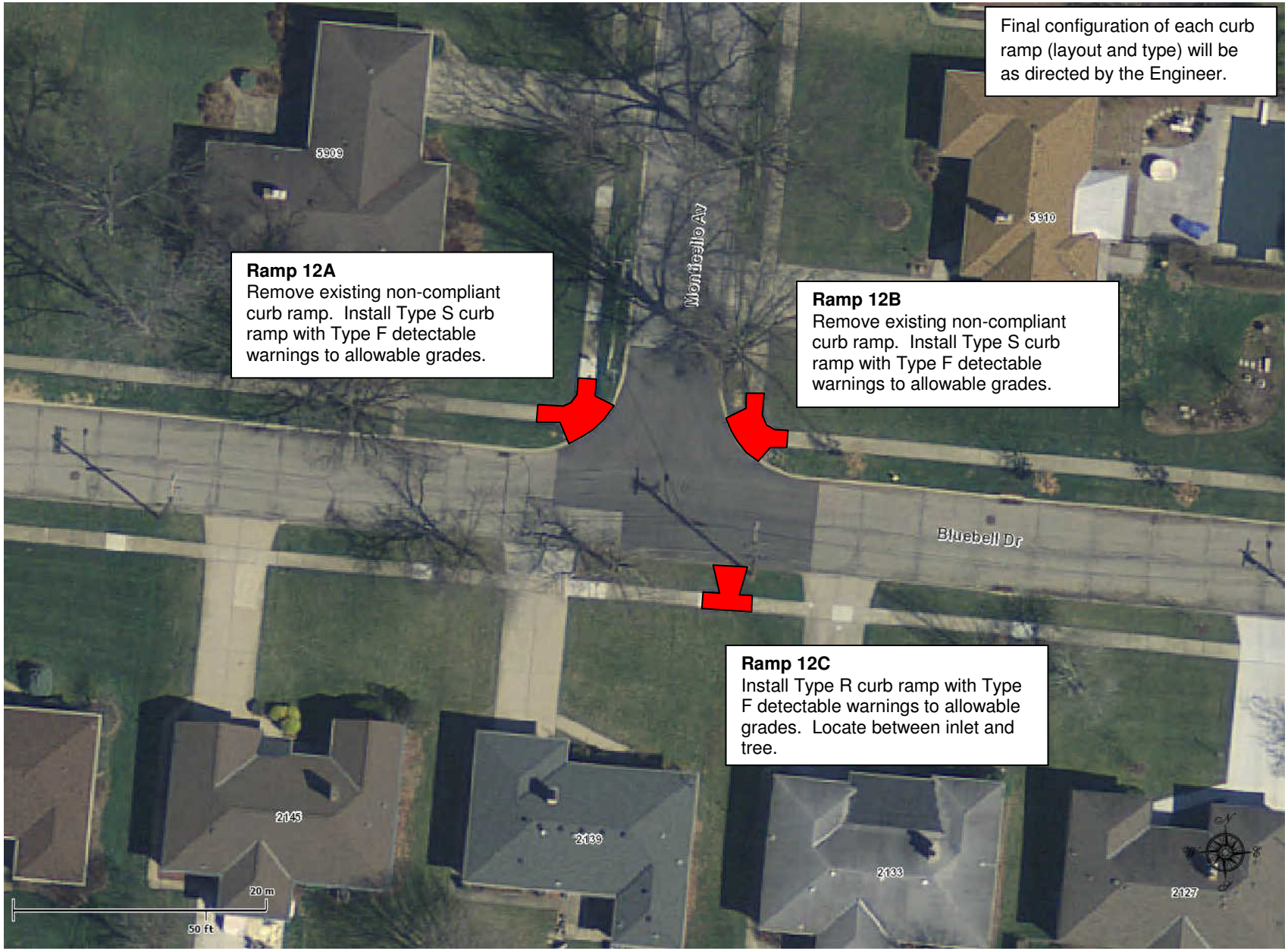

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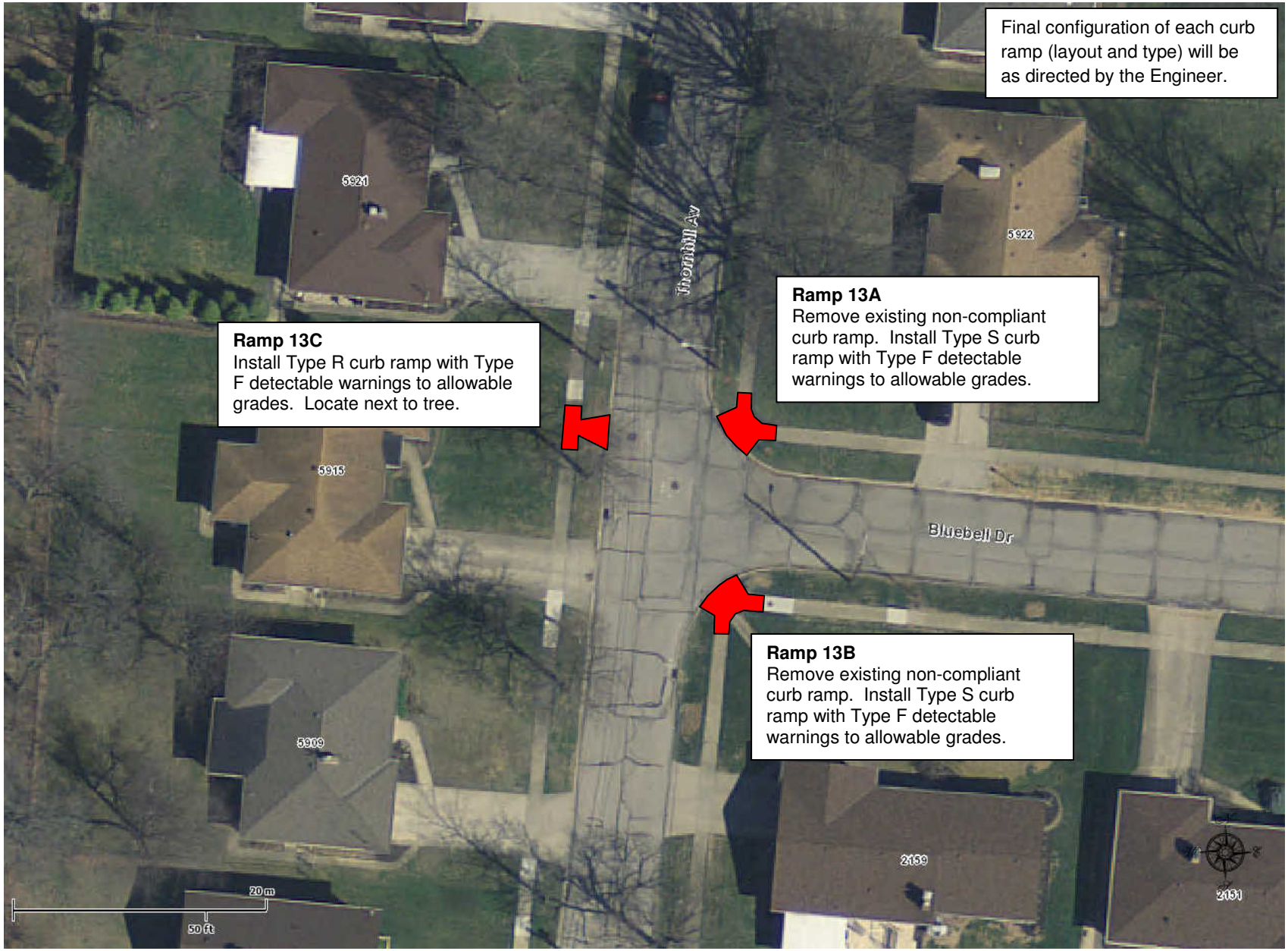

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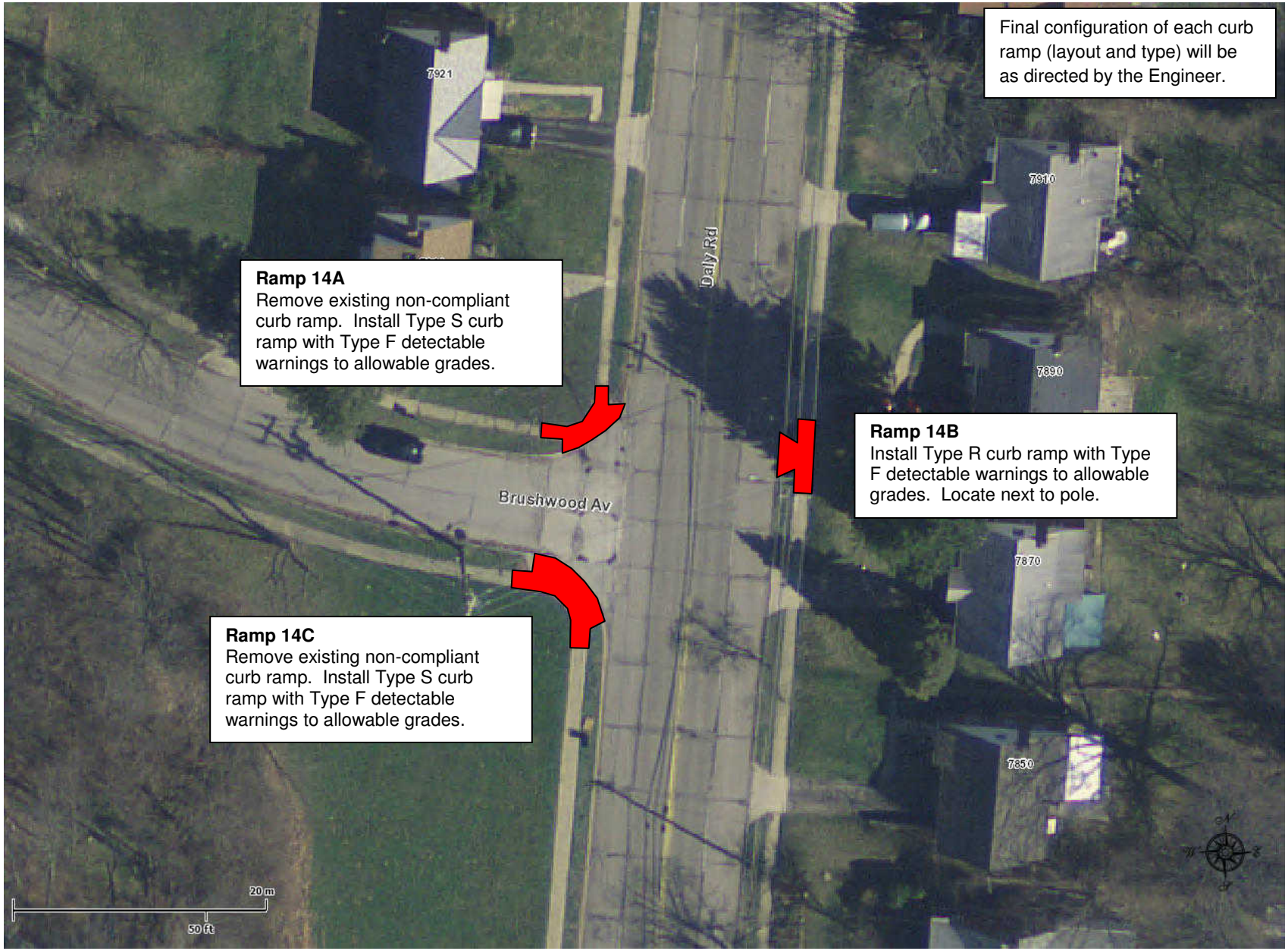

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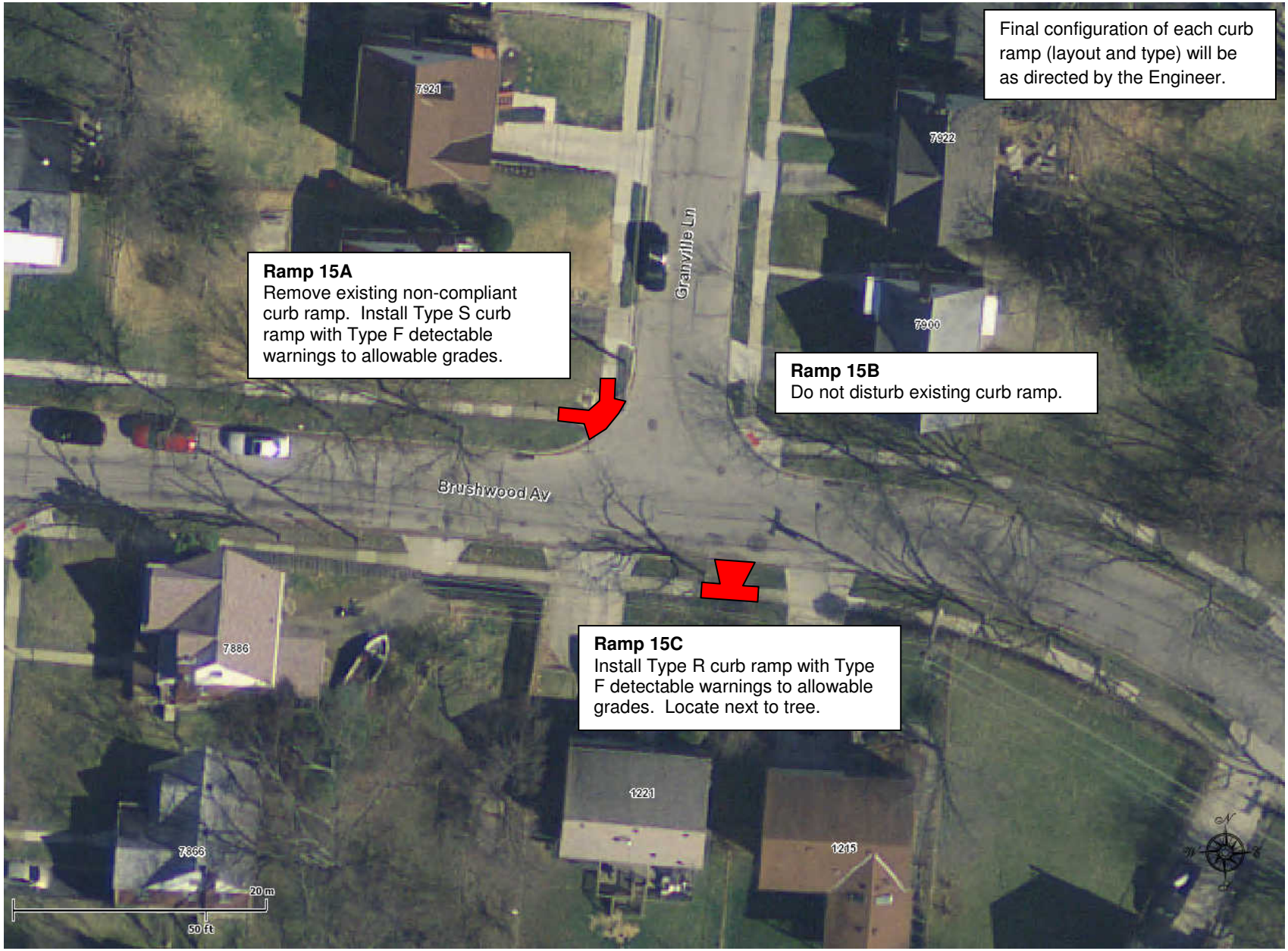

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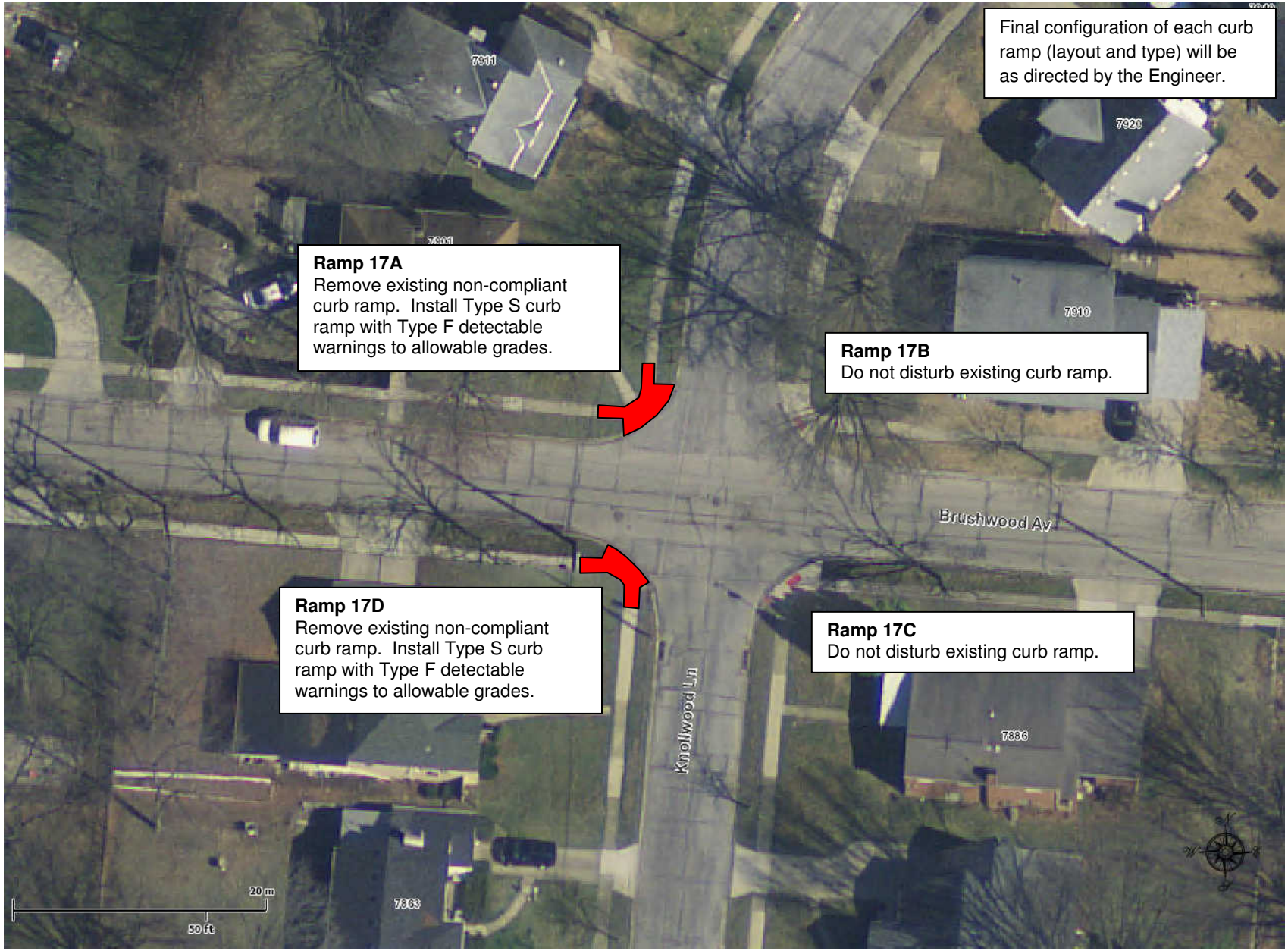

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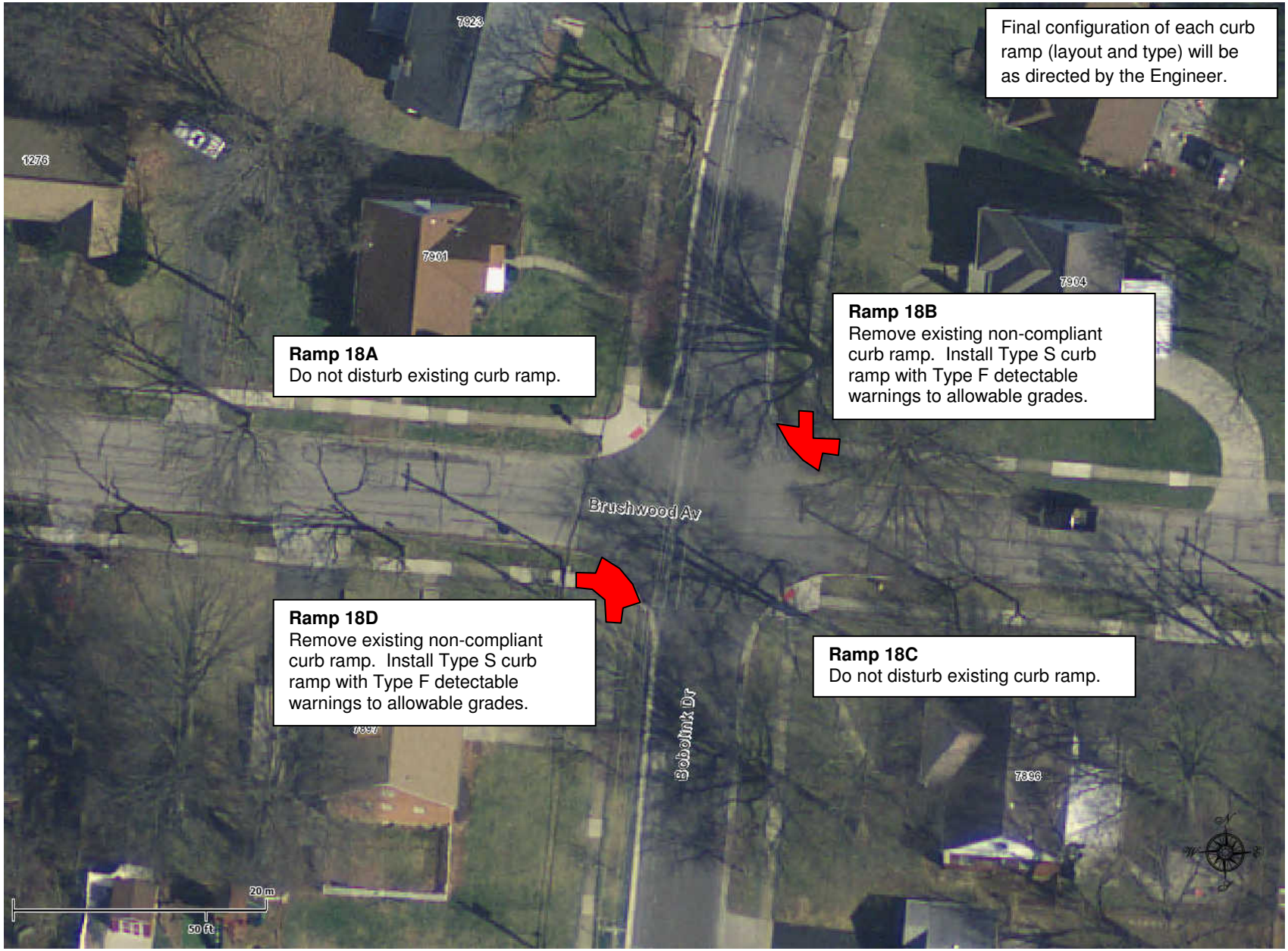

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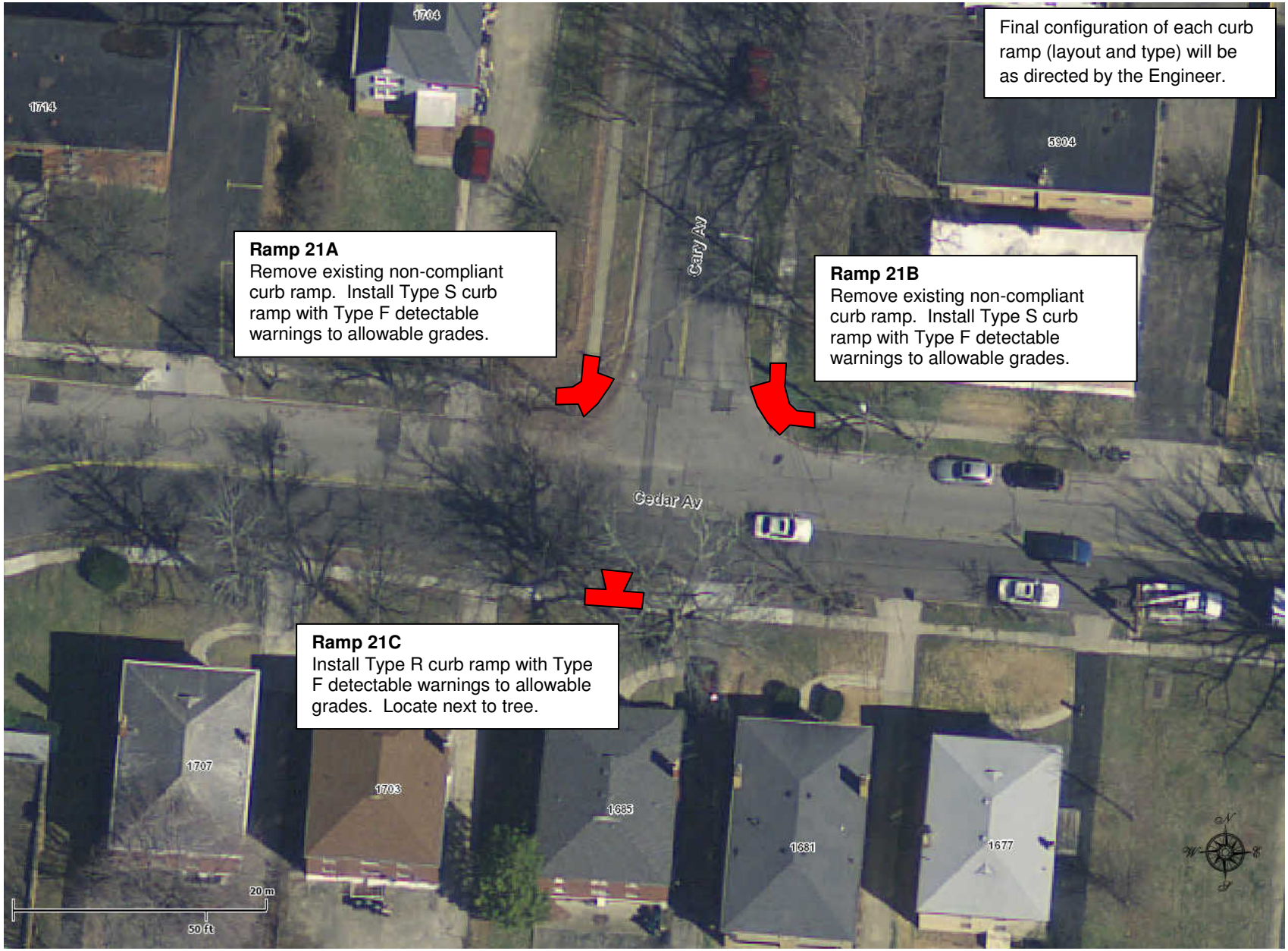

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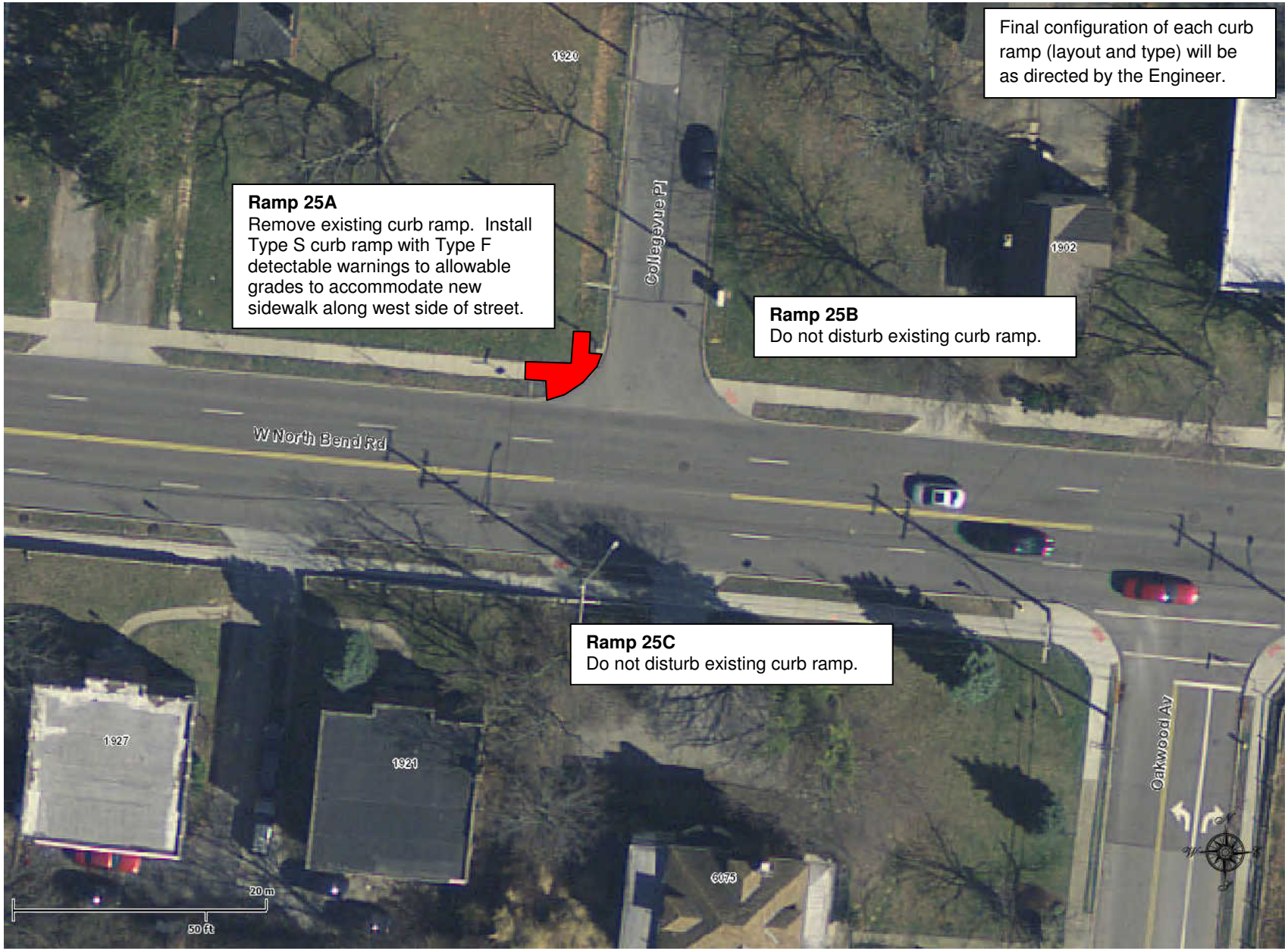

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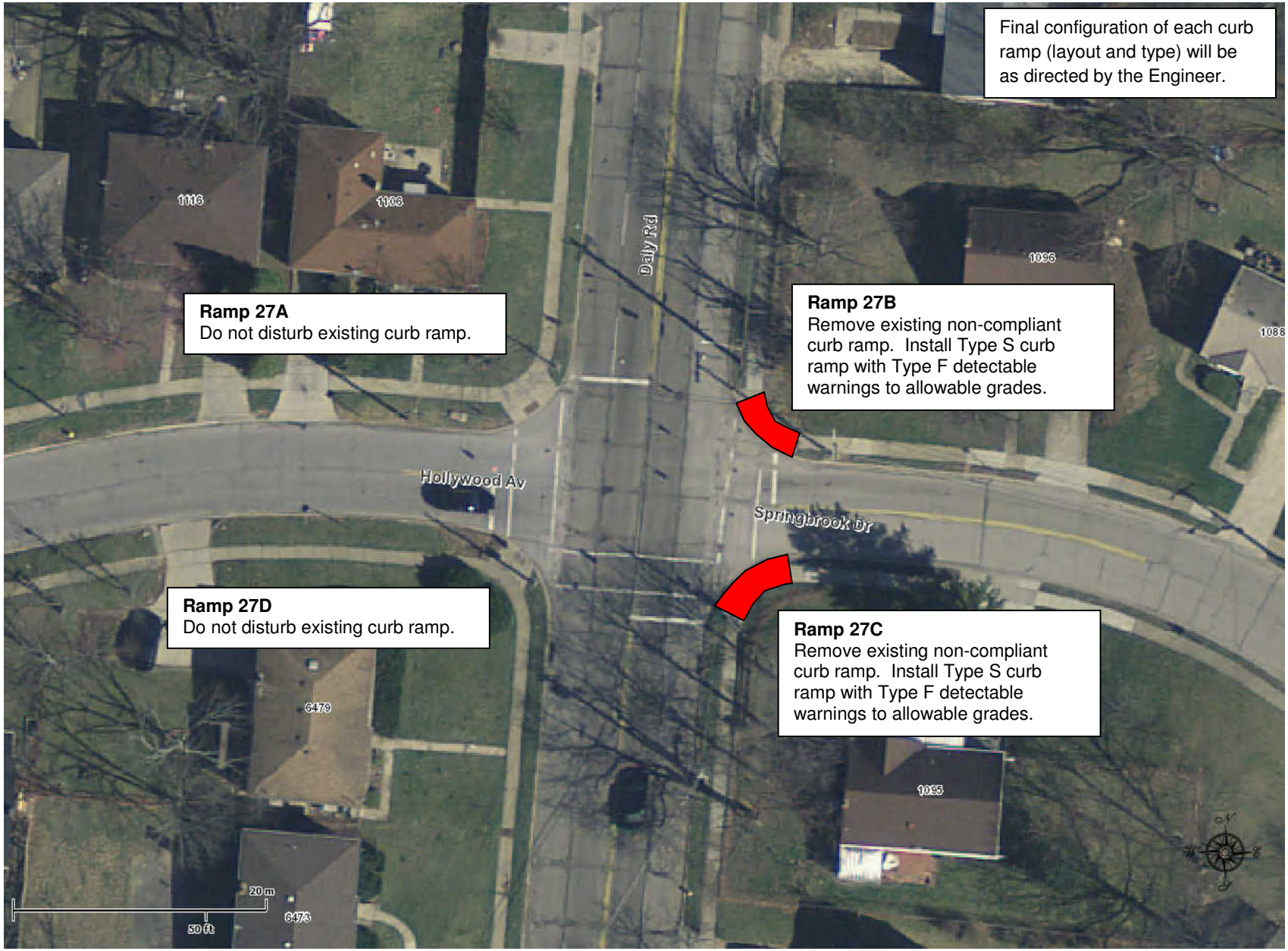

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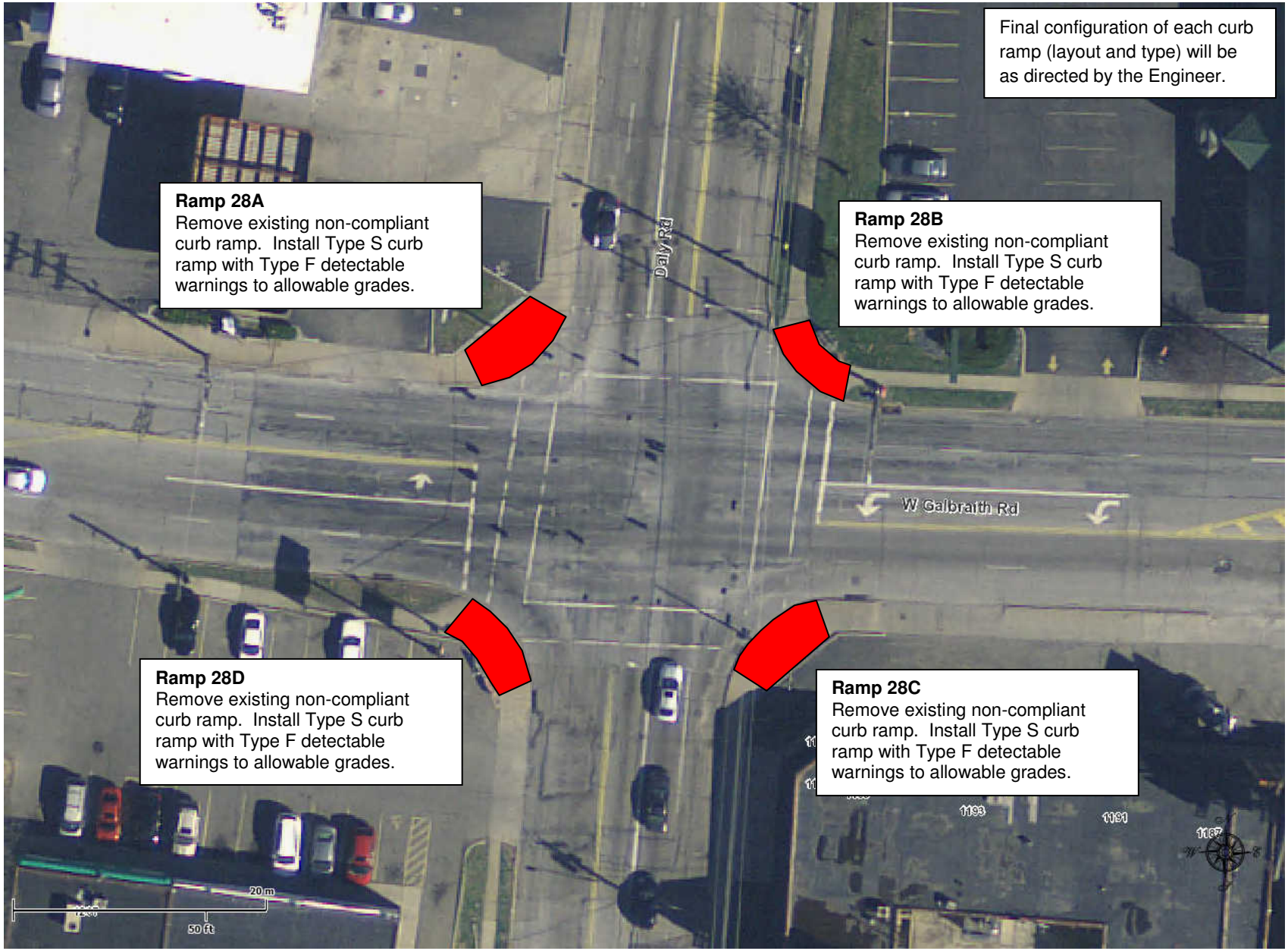

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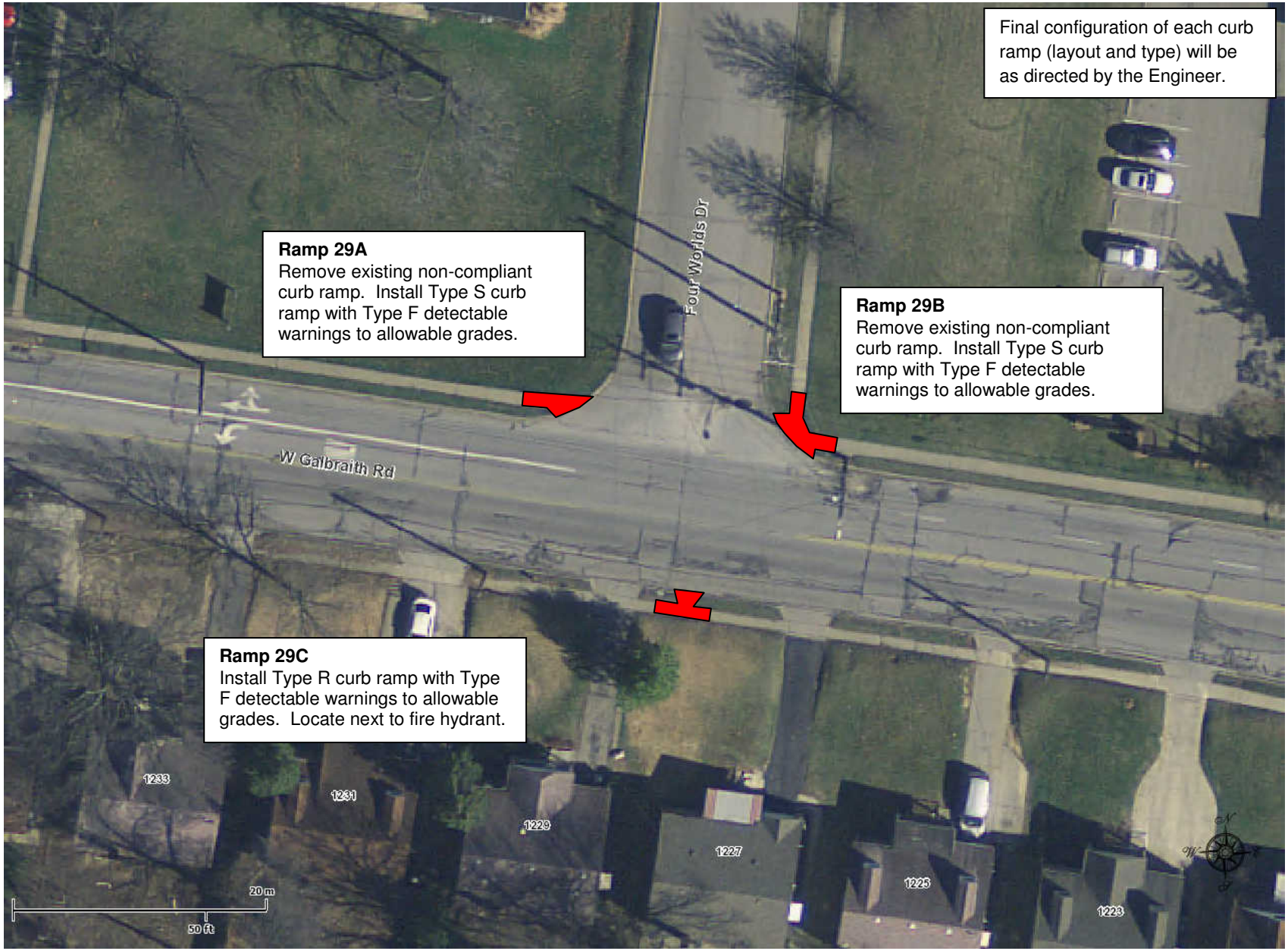

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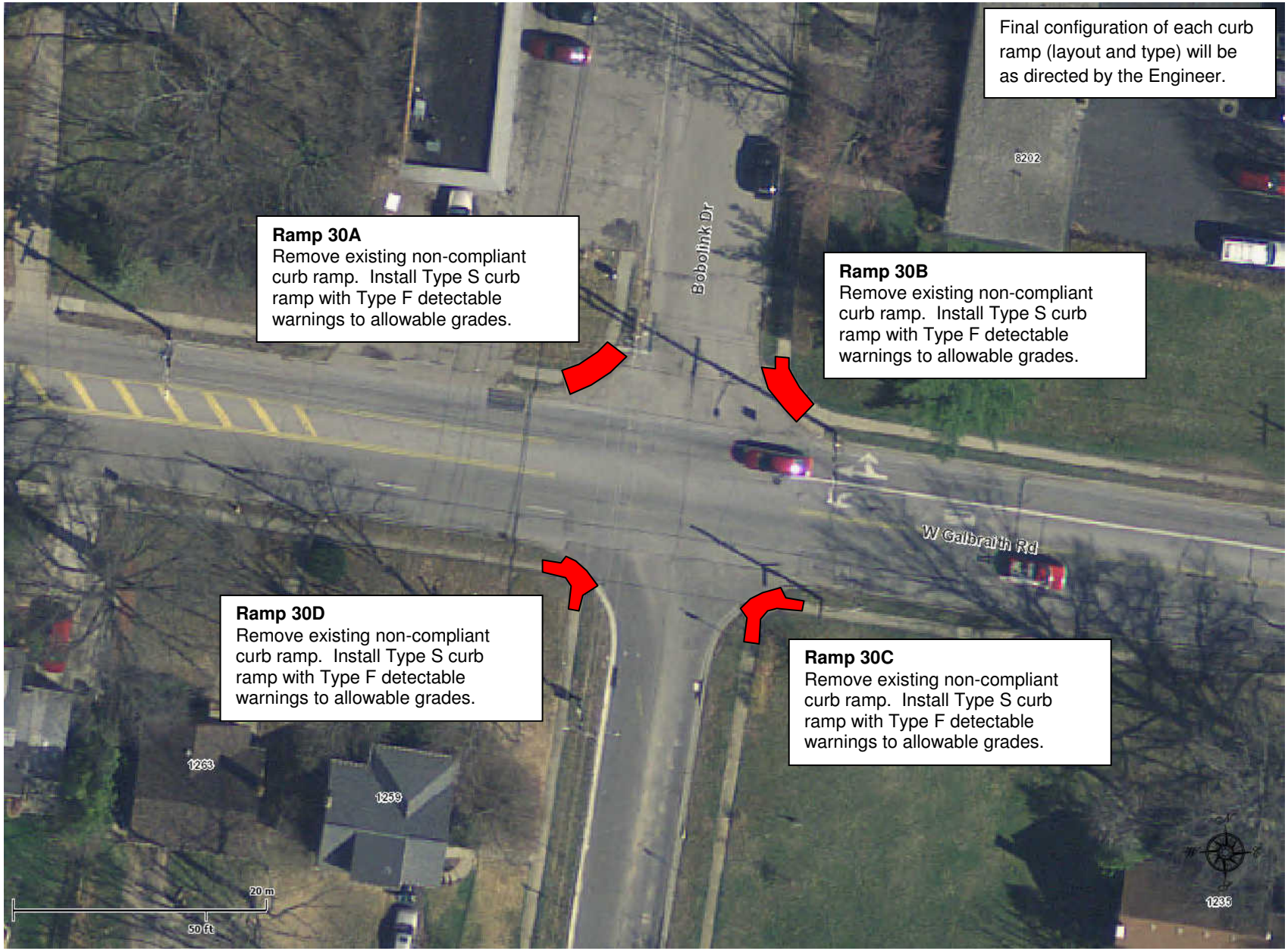

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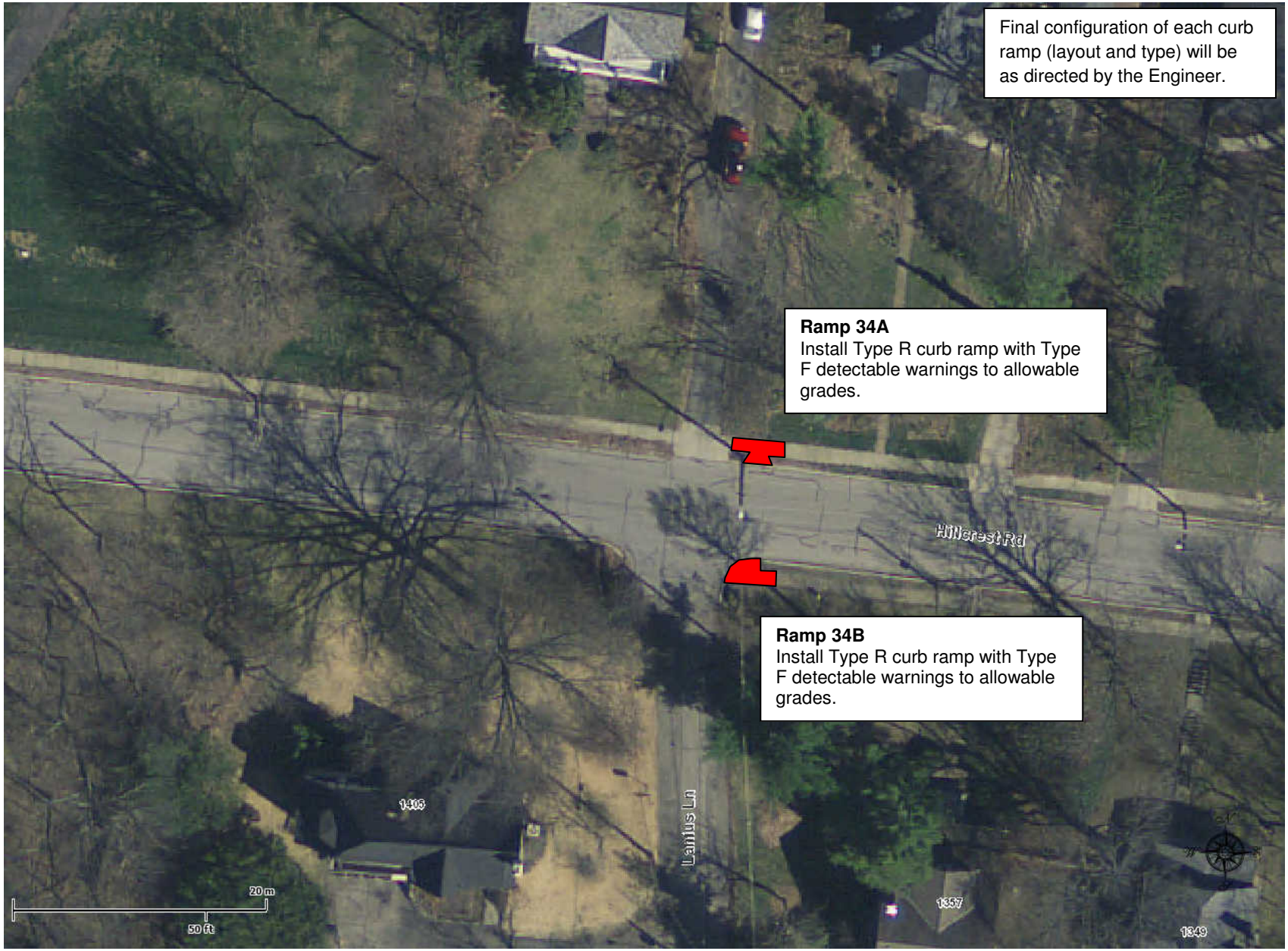

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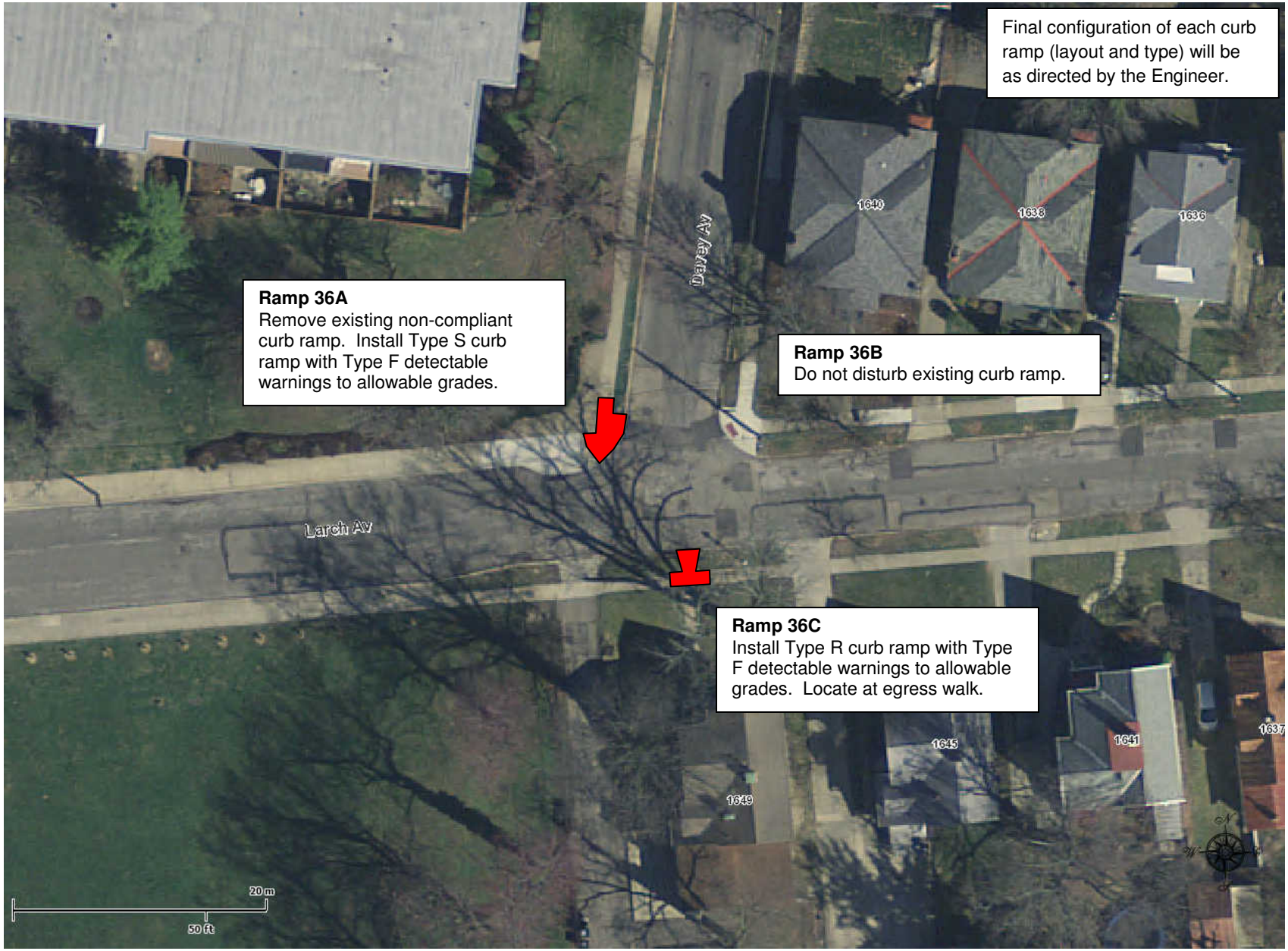

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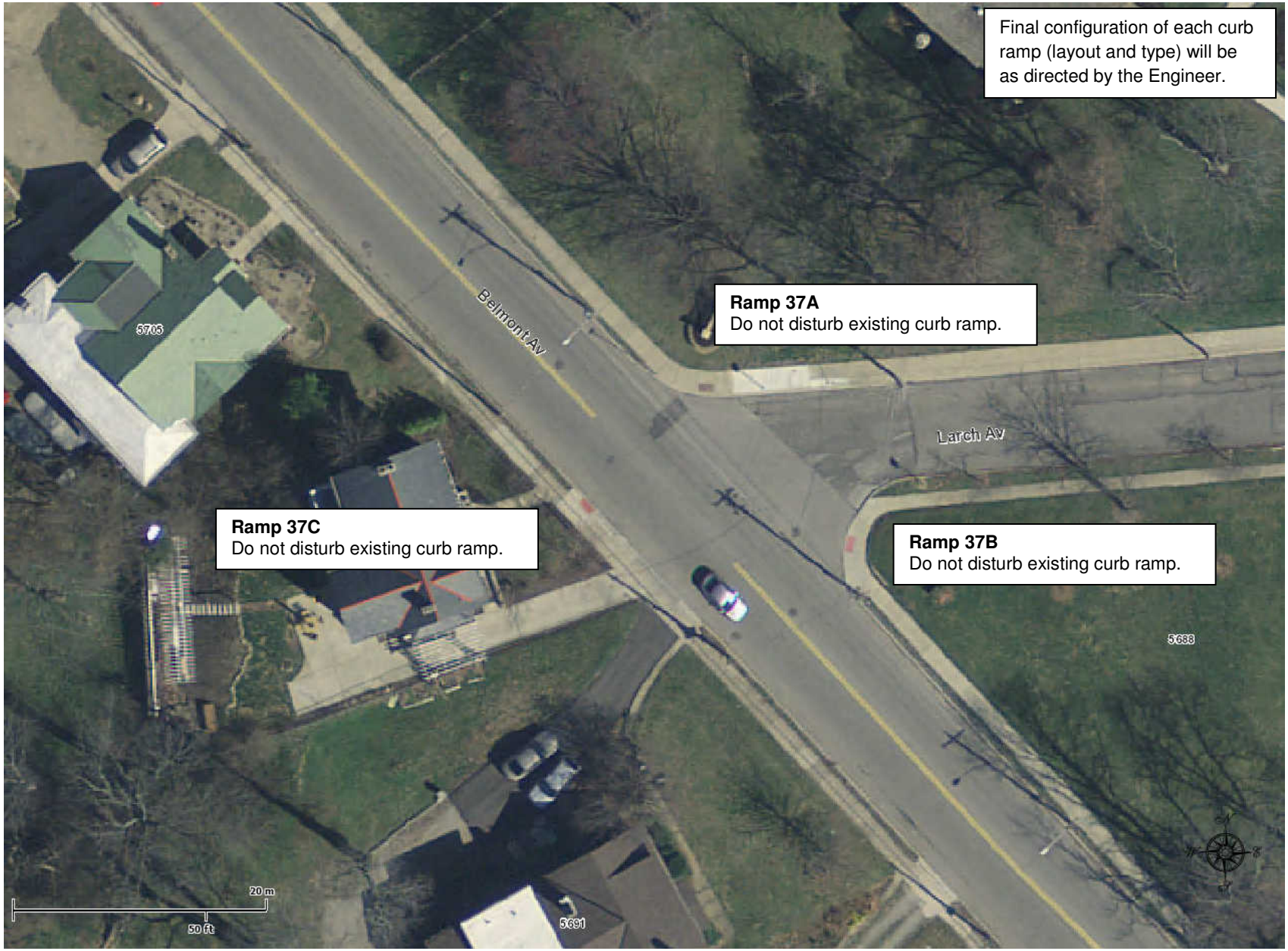

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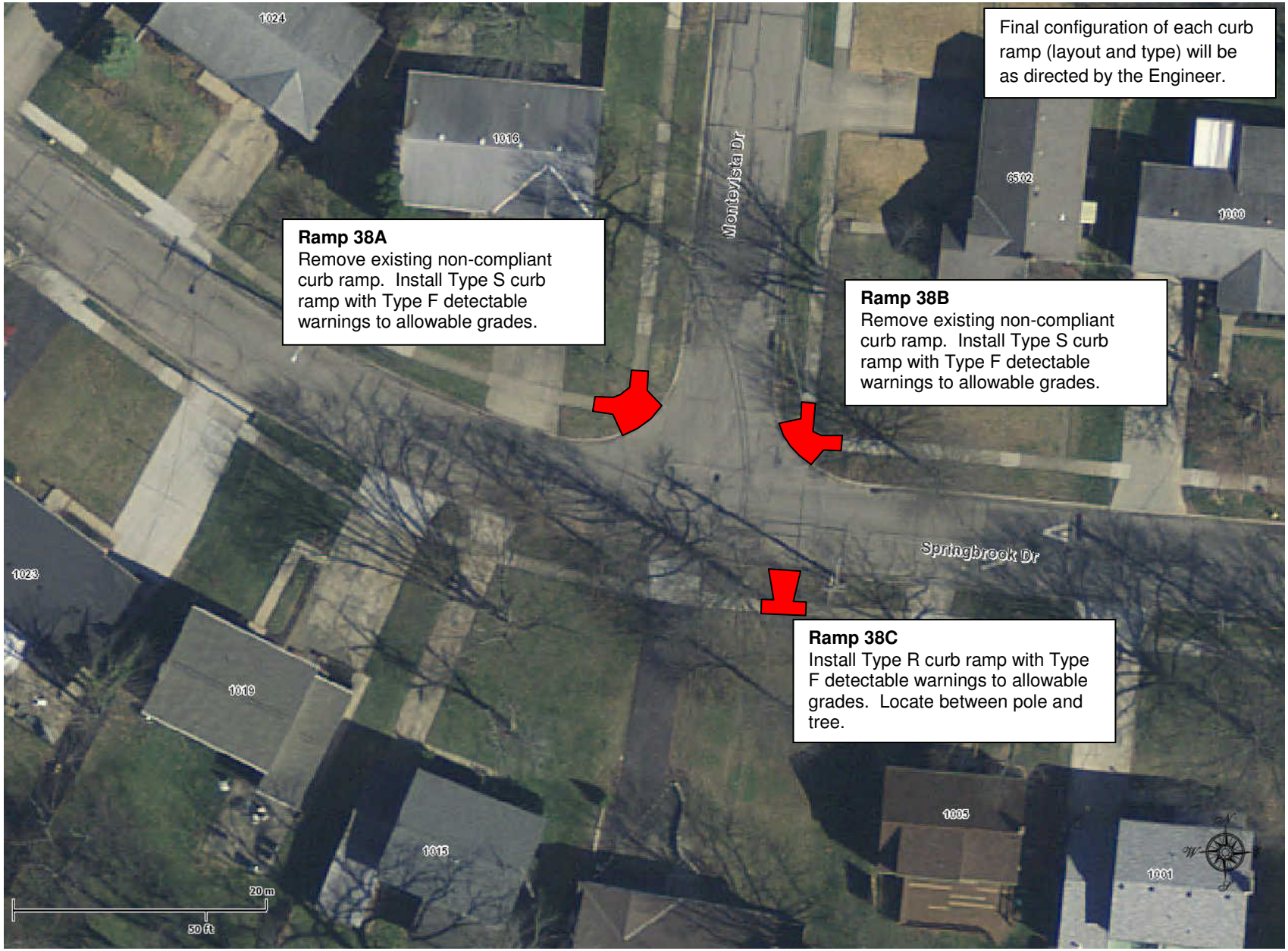

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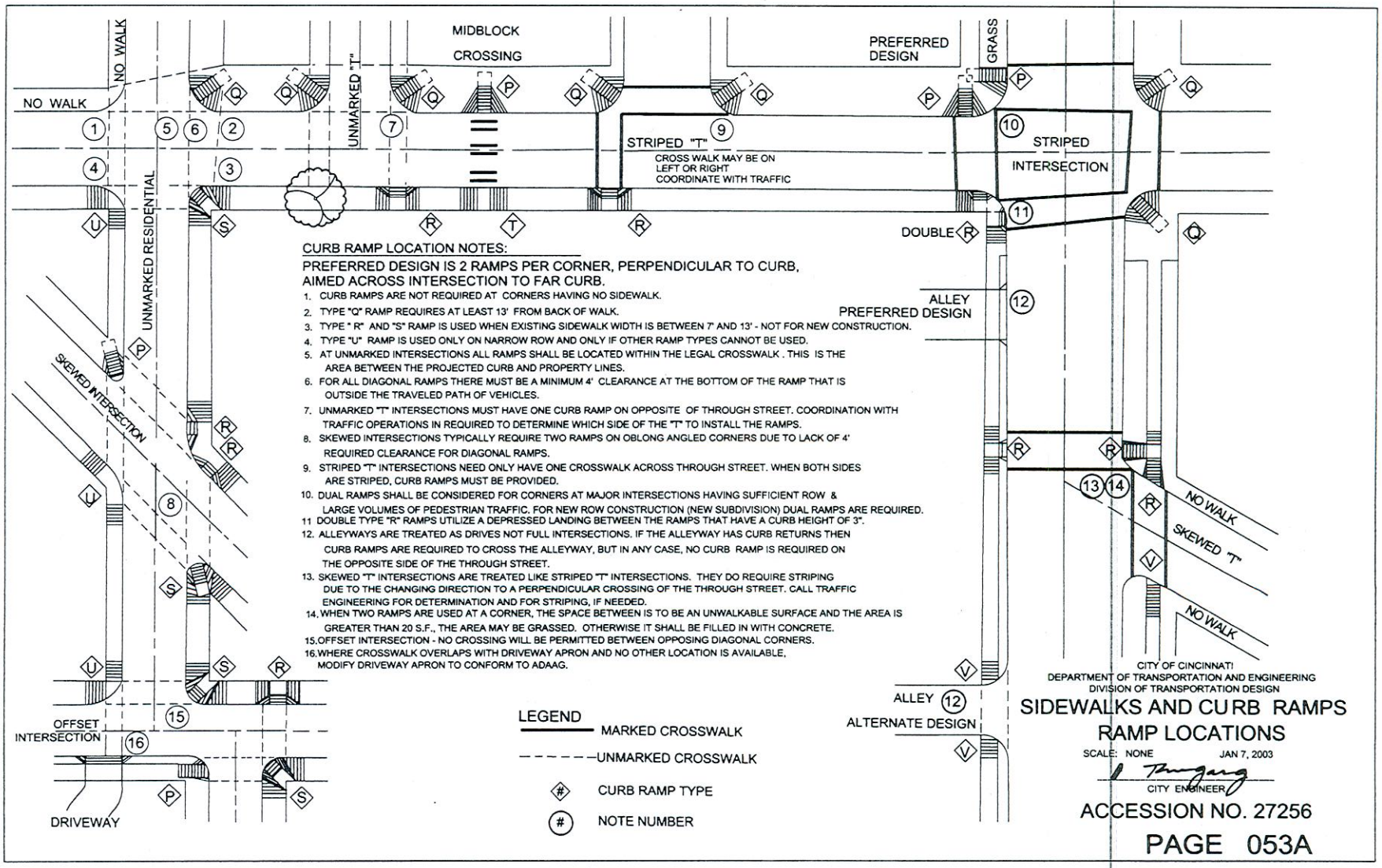


CURB RAMP LOCATION NOTES:

PREFERRED DESIGN IS 2 RAMPS PER CORNER, PERPENDICULAR TO CURB, AIMED ACROSS INTERSECTION TO FAR CURB.

1. CURB RAMPS ARE NOT REQUIRED AT CORNERS HAVING NO SIDEWALK.
2. TYPE "Q" RAMP REQUIRES AT LEAST 13' FROM BACK OF WALK.
3. TYPE " R" AND "S" RAMP IS USED WHEN EXISTING SIDEWALK WIDTH IS BETWEEN 7' AND 13' - NOT FOR NEW CONSTRUCTION.
4. TYPE "U" RAMP IS USED ONLY ON NARROW ROW AND ONLY IF OTHER RAMP TYPES CANNOT BE USED.
5. AT UNMARKED INTERSECTIONS ALL RAMPS SHALL BE LOCATED WITHIN THE LEGAL CROSSWALK . THIS IS THE AREA BETWEEN THE PROJECTED CURB AND PROPERTY LINES.
6. FOR ALL DIAGONAL RAMPS THERE MUST BE A MINIMUM 4' CLEARANCE AT THE BOTTOM OF THE RAMP THAT IS OUTSIDE THE TRAVELED PATH OF VEHICLES.
7. UNMARKED "T" INTERSECTIONS MUST HAVE ONE CURB RAMP ON OPPOSITE OF THROUGH STREET. COORDINATION WITH TRAFFIC OPERATIONS IN REQUIRED TO DETERMINE WHICH SIDE OF THE "T" TO INSTALL THE RAMPS.
8. SKEWED INTERSECTIONS TYPICALLY REQUIRE TWO RAMPS ON OBLONG ANGLED CORNERS DUE TO LACK OF 4' REQUIRED CLEARANCE FOR DIAGONAL RAMPS.
9. STRIPED "T" INTERSECTIONS NEED ONLY HAVE ONE CROSSWALK ACROSS THROUGH STREET. WHEN BOTH SIDES ARE STRIPED, CURB RAMPS MUST BE PROVIDED.
10. DUAL RAMPS SHALL BE CONSIDERED FOR CORNERS AT MAJOR INTERSECTIONS HAVING SUFFICIENT ROW & LARGE VOLUMES OF PEDESTRIAN TRAFFIC. FOR NEW ROW CONSTRUCTION (NEW SUBDIVISION) DUAL RAMPS ARE REQUIRED.
11. DOUBLE TYPE "R" RAMPS UTILIZE A DEPRESSED LANDING BETWEEN THE RAMPS THAT HAVE A CURB HEIGHT OF 3".
12. ALLEYWAYS ARE TREATED AS DRIVES NOT FULL INTERSECTIONS. IF THE ALLEYWAY HAS CURB RETURNS THEN CURB RAMPS ARE REQUIRED TO CROSS THE ALLEYWAY, BUT IN ANY CASE, NO CURB RAMP IS REQUIRED ON THE OPPOSITE SIDE OF THE THROUGH STREET.
13. SKEWED "T" INTERSECTIONS ARE TREATED LIKE STRIPED "T" INTERSECTIONS. THEY DO REQUIRE STRIPING DUE TO THE CHANGING DIRECTION TO A PERPENDICULAR CROSSING OF THE THROUGH STREET. CALL TRAFFIC ENGINEERING FOR DETERMINATION AND FOR STRIPING, IF NEEDED.
14. WHEN TWO RAMPS ARE USED AT A CORNER, THE SPACE BETWEEN IS TO BE AN UNWALKABLE SURFACE AND THE AREA IS GREATER THAN 20 S.F., THE AREA MAY BE GRASSED. OTHERWISE IT SHALL BE FILLED IN WITH CONCRETE.
15. OFFSET INTERSECTION - NO CROSSING WILL BE PERMITTED BETWEEN OPPOSING DIAGONAL CORNERS.
16. WHERE CROSSWALK OVERLAPS WITH DRIVEWAY APRON AND NO OTHER LOCATION IS AVAILABLE, MODIFY DRIVEWAY APRON TO CONFORM TO ADAAG.

CITY OF CINCINNATI
DEPARTMENT OF TRANSPORTATION AND ENGINEERING
DIVISION OF TRANSPORTATION DESIGN

SIDEWALKS AND CURB RAMPS
RAMP LOCATIONS

SCALE: NONE JAN 7, 2003

CITY ENGINEER

ACCESSION NO. 27256

PAGE 053A

APPENDIX E
40A/40

GENERAL NOTES FOR CURB RAMPS AND DETECTABLE WARNINGS

GENERAL

1. ALL AREAS, ELEMENTS, AND FACILITIES FOR PEDESTRIANS ACCESS, CIRCULATION AND USE THAT ARE CONSTRUCTED, INSTALLED OR ALTERED IN THE PUBLIC RIGHT-OF-WAY AND WHICH ARE SUBJECT TO TITLE II OF THE AMERICANS WITH DISABILITIES ACT (ADA) SHALL COMPLY WITH ALL CURRENT FEDERAL REGULATIONS INCLUDING THE ADA ACCESSIBILITY GUIDELINES (ADAAG).
2. NEWLY CONSTRUCTED AND ALTERED STREETS OR PEDESTRIAN WALKWAYS MUST CONTAIN CURB RAMPS AT INTERSECTIONS. (28 CFR 35.151(d)) ALTERATIONS INCLUDE RESURFACING AND ANY WORK THAT IMPACTS THE MAJORITY OF THE STREET OR WALKWAY. THE ENTIRE INTERSECTION EFFECTED MUST BE BROUGHT INTO COMPLIANCE.
3. ALL MATERIALS SHALL CONFORM TO THE CITY OF CINCINNATI SUPPLEMENT TO THE OHIO DEPARTMENT OF TRANSPORTATION "CONSTRUCTION AND MATERIAL SPECIFICATIONS, CURRENT EDITION.
4. ALL SLOPES REFERRED TO ARE REFERENCED TO A HORIZONTAL PLANE.
5. FOR SIDESWALKS, CURB RAMPS, AND DRIVEWAYS THE "PREFERRED" DIMENSION SHALL BE THE NORMAL STANDARD TO BE MET, UNLESS EXISTING RIGHT OF WAY OR FEATURES MAKE COMPLIANCE INFEASABLE, IN THIS CASE THE "MINIMUM" STANDARD MUST BE MET.

PUBLIC SIDEWALKS

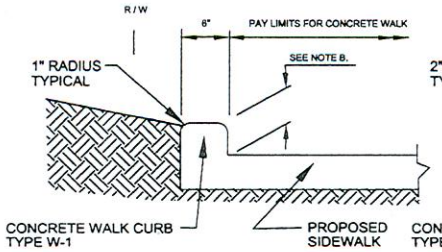
1. MINIMUM WIDTH OF NEW SIDEWALKS SHALL BE FIVE FEET.
2. PREFERRED CLEAR WIDTH OF A CONTINUOUS PASSAGE SHALL BE 48 INCHES; FOR ALTERATIONS TO EXISTING RIGHTS OF WAY, WHERE THE PREFERRED CLEAR WIDTH CANNOT BE MET, THE MINIMUM CLEAR WIDTH OF A CONTINUOUS PASSAGE SHALL BE 36 INCHES.
3. IN NEW CONSTRUCTION, SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%. IN ALTERATIONS, STEEPER SIDEWALK CROSS SLOPES MAY BE USED AT THE DIRECTION OF THE ENGINEER FOR SHORT DISTANCES, TO MEET EXISTING DOORSTEPS.

CURB RAMPS

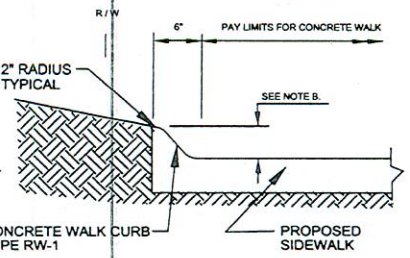
1. A TYPICAL CURB RAMP IS COMPOSED OF THE FOLLOWING ELEMENTS: RAMP, LANDING, SIDES, SURFACE, AND INTERSECTIONS WITH THE ROADWAY.
2. RAMP. THE CURB RAMP MUST HAVE A SLOPE OF NO GREATER THAN 12:1 IN THE DIRECTION OF TRAVEL AND A CROSS SLOPE OF NO MORE THAN 2%. IF THE LONGITUDINAL SLOPE OF THE ACCESSIBLE ROUTE IS 5% OR LESS AND SPACE FOR A LANDING IS LIMITED, THE SIDEWALK LANDING MAY BE OMITTED. THE MINIMUM WIDTH FOR A RAMP IS 48-INCHES (NOT INCLUDING SIDES).
3. THE LANDING IS THE LEVEL AREA AT THE TOP OF A RAMP AND MUST NOT HAVE A SLOPE OF MORE THAN 2% IN ANY DIRECTION. THE LANDING AREA IS USED FOR TURNING AND MUST MAINTAIN A PREFERRED LENGTH AND WIDTH OF 60"X60" FOR ALTERATIONS IN EXISTING RIGHTS OF WAY WHERE PREFERRED CLEAR WIDTH CANNOT BE MET, THE MINIMUM LENGTH AND WIDTH SHALL BE 48"X48". IN ALL CASES, TYPE T CURB RAMP MUST HAVE A LANDING LENGTH OF 60-INCHES.
4. SIDES. THE CURB RAMP SHALL BE FLARED WHEN PEDESTRIANS ARE TO CROSS THE RAMP, OR HAVE CURBING IF THE ADJACENT AREA IS A NON-PEDESTRIAN SURFACE SUCH AS A LAWN STRIP, BRICKWORK, OR OBSTACLE. MAXIMUM FLARE SLOPES ARE 10:1 OR AS DIRECTED BY THE ENGINEER. DIAGONAL CURB RAMPS MUST HAVE WELL DEFINED EDGES THAT ARE TO BE PARALLEL TO THE DIRECTION OF PEDESTRIAN FLOW. A DIAGONAL CURB RAMP MAY ALSO HAVE A MINIMUM 36-INCH SEGMENT OF FULL HEIGHT CURB ON EACH SIDE OF THE RAMP WHICH IS WITHIN THE CROSSWALK LINES OR PEDESTRIAN RIGHT-OF-WAY.
5. FLARE TREATMENTS. VARIOUS FLARE TREATMENTS ARE SHOWN IN THE DRAWINGS. IN GENERAL A 10:1 FLARE IS PREFERRED. THIS PROVIDES A CONCRETE WALKING SURFACE FOR THE ENTIRE SIDEWALK WIDTH IN THE DIRECTION OF TRAVEL . WALK CURB TYPE W-1 OR RW-1 MAY BE USED WHERE A RAMP IS ADJACENT TO A LAWN STRIP, BRICKWORK OR OBSTACLE .
6. SURFACE. THE CURB RAMP SURFACE MUST BE STABLE, FIRM, AND SLIP-RESISTANT. CHANGE IN LEVEL UP TO 0.25-INCH MAY BE VERTICAL WITHOUT EDGE TREATMENT. CHANGES BETWEEN 0.25 AND 0.5-INCHES MUST BE BEVELED WITH A SLOPE OF NO GREATER THAN 12:1. CHANGES IN LEVEL ABOVE 0.5-INCH MUST BE ACCOMPLISHED BY A RAMP.
7. UP. THE INTERSECTION OF THE RAMP WITH THE ROADWAY SHALL BE PERPENDICULAR AND EDGES SHALL BE FLUSH. THE COUNTER SLOPE FROM THE END OF RAMP UP THE CROSS SLOPE OF THE ROADWAY SHALL BE NO MORE THAN 20:1 FOR THE FIRST 24-INCHES.
8. NO OBSTACLES OR PROTRUSIONS SHALL BE PLACED WITHIN THE CURB RAMP AREA. EXISTING MANHOLE COVERS, VALVE BOXES SHALL BE FLUSH MOUNTED WITH WALKING SURFACE.
9. THE THICKNESS OF ALL NEW CURB RAMPS SHALL BE 5-INCHES.
10. TRANSITIONAL SECTIONS OF SIDEWALK SHALL BE INSTALLED TO CONNECT NEW OR REPLACED CURB RAMPS WITH EXISTING SIDEWALKS THAT DO NOT MEET CURRENT STANDARDS AND SPECIFICATIONS. THESE TRANSITION SEGMENTS OF SIDEWALK SHALL PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND NEW CONCRETE. MAXIMUM WARPING (ROTATION) RATE SHALL BE 1/8" VERTICAL CHANGE PER LINEAR FOOT. HORIZONTAL DISTANCE TRAVELLED AND MINIMUM DISTANCE SHALL BE ONE FULL SIDEWALK BLOCK OR 5 (FIVE) FEET.
11. FOR PARALLEL AND COMBINATION RAMPS WHERE A RAMP IS LOCATED WITHIN THE PUBLIC SIDEWALK, THE MINIMUM LENGTH FOR THE RAMPS SHALL BE ONE SIDEWALK BLOCK LENGTH OR FIVE FEET; AND THE MAXIMUM LENGTH SHALL BE WHAT IS REQUIRED TO MAINTAIN A 12:1 SLOPE TO MEET EXISTING SIDEWALK GRADE. WHEN THIS IS DETERMINED UNFEASIBLE DUE TO STEEP PITCH OF EXISTING ROADWAY, IN NO CASE SHALL THE RAMP BE MORE THAN 15 FEET.
12. STEEP SLOPES. ALL RAMPS LOCATED ON STREETS WITH A RUNNING PROFILE GRADE GREATER THAN 5% MUST BE REVIEWED AND APPROVED BY THE ENGINEER.
13. RAMP SHALL BE CONSTRUCTED WITHIN THE CROSSWALK AND NOT BEHIND AN EXISTING INLET.
14. JOINTS SHALL BE PROVIDED IN THE CURB RAMP AS EXTENSIONS OF THE WALK JOINTS AND CONSISTENT WITH 608.03 REQUIREMENTS FOR FOR NEW CONCRETE WALK. A 1/2" 705.03 EXPANSION JOINT FILLER SHALL BE PROVIDED WHERE NEW CONCRETE MEETS THE EXISTING CONCRETE WALK. LINES SHOWN ON THIS DRAWING TO INDICATE THE RAMP EDGE AND SLOPE CHANGES ARE NOT NECESSARY JOINT LINES.
15. DIMENSIONS, LOCATIONS AND TYPE OF CURB RAMP MAY BE MODIFIED TO ACCOMMODATE EXISTING CONDITIONS, WITH APPROVAL OF THE CITY ENGINEER.
16. SLOPE AND CROSS-SLOPE CONVERSION TABLE:

RATIO	PERCENT	INCH/FOOT	DEGREES	WHERE UTILIZED
1:12	8.3	1	4.8	MAXIMUM SLOPE FOR RAMPS
1:10	10.0	1 1/4	5.7	MAXIMUM SLOPE FOR FLARES
1:48	2.0	1/4	1.1	MAXIMUM SLOPE FOR LANDING AND CROSS-SLOPE OF LANDINGS, RAMPS AND SIDEWALK

17. FOR CURB RAMP STANDARD DRAWINGS TYPICAL DIMENSIONS ARE USED BASED ON A FULL CURB HEIGHT OF 6-INCHES. ADJUSTMENTS MAY BE MADE TO LENGTH OF RAMPS AND FLARES BASED ON ACTUAL CURB REVEAL HEIGHT. REQUIRED SLOPES MUST BE MAINTAINED.
18. WHEN TWO RAMPS ARE USED AT A CORNER IF THE SPACE BETWEEN IS TO BE AN UNWALKABLE SURFACE IT MAY BE GRASSED IF GREATER THAN 20 S.F., OTHERWISE IT SHALL BE FILLED IN CONCRETE.
19. TYPES R & T RAMPS. INSTALL CURB TYPE W-1 AT THE BACK OF WALK UNLESS DETAILED ON PLAN SHEETS. THE PURPOSE OF THIS CURB IS TO CONTAIN STORMWATER WITHIN RIGHT OF WAY, MEET EXISTING CONDITIONS OR CONTROL ACCESS.
20. DETECTABLE WARNING IS REQUIRED FOR ALL CURB RAMPS. TRUNCATED DOMES SHALL HAVE A DIAMETER OF 0.9 INCH AT THE BOTTOM, A DIAMETER OF 0.4 INCH AT THE TOP, A HEIGHT OF 0.2 INCH AND A CENTER-TO-CENTER SPACING OF 2.35 INCHES MEASURED ALONG ONE SIDE OF A SQUARE ARRANGEMENT.
21. DOME ALIGNMENT. DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
22. DRAINAGE. ALL CURB RAMPS SHALL BE DESIGNED AND CONSTRUCTED TO PROVIDE POSITIVE DRAINAGE SO AS TO PREVENT PONDING. PARTICULAR ATTENTION IS TO BE GIVEN TO RAMPS LOCATED IN EITHER FLAT OR STEEP AREAS, AND CURB RAMP TYPES R, S, & V THAT HAVE LANDINGS AT STREET LEVEL.



CONCRETE WALK CURB TYPE W - 1



CONCRETE WALK CURB TYPE RW - 1

A. SEE NOTE 17 ABOVE.
B. CURB HEIGHT VARIES FROM 0" TO 6". 6" MAXIMUM.
C. 608 CONCRETE WALK WILL BE MEASURED TO THE FACE OF CURB TYPE W OR RW-1 WILL BE CONSIDERED UNIFORMLY 5" THICK. MEASUREMENT FOR ITEM 609 WALK CURB TYPE W-1 OR RW-1 WILL BE THE ACTUAL NUMBER OF LINEAR FEET OF CURB. PAYMENT AT THE PRICE BID PER LINEAR FOOT SHALL COVER THE NECESSARY FURNISHING, FORMING AND PLACING OF CONCRETE WHICH SHALL BE CONSIDERED TO BE ALL OF THE CONCRETE UNDER THE CURB.

CITY OF CINCINNATI
DEPARTMENT OF TRANSPORTATION AND ENGINEERING
DIVISION OF TRANSPORTATION DESIGN

SIDEWALKS AND CURB RAMPS GENERAL NOTES

SCALE: NONE JAN 7, 2003

CITY ENGINEER

ACCESSION NO. 27256

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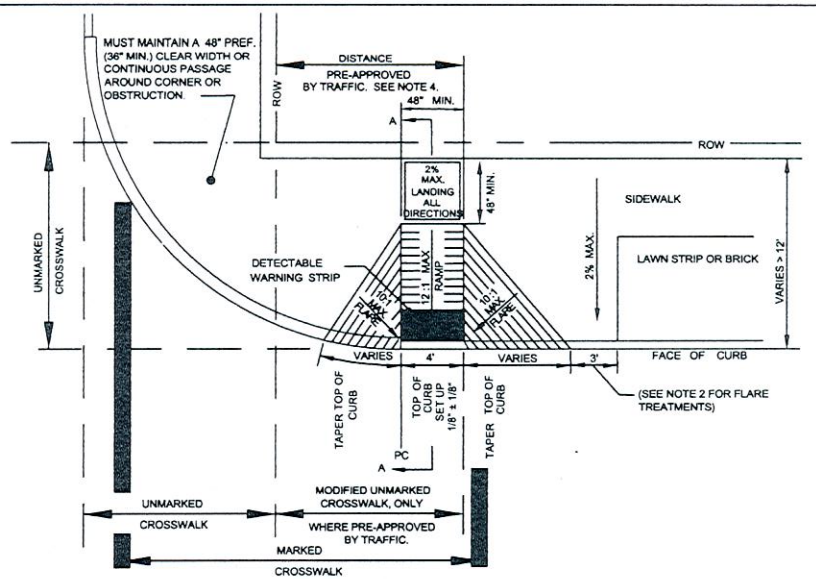
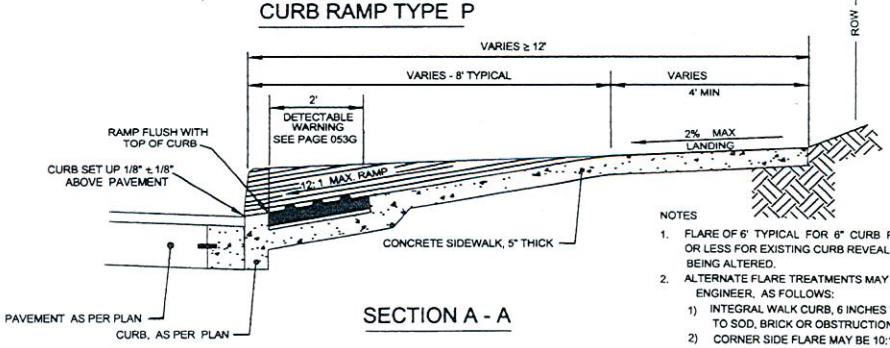
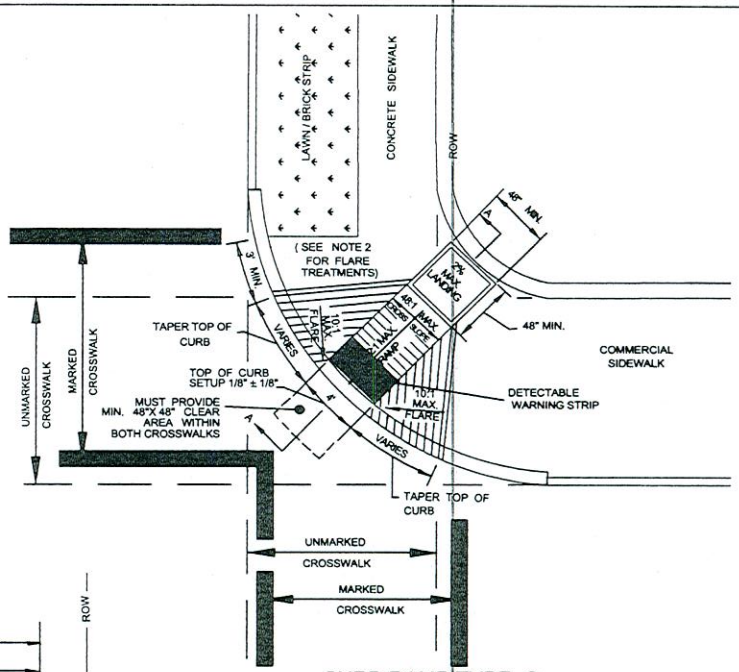
APPENDIX E 053/40



CURB RAMP TYPE P



SECTION A - A



CURB RAMP TYPE Q

NOTES

1. FLARE OF 6' TYPICAL FOR 6" CURB REVEAL AND 12:1 SLOPE, MAY BE MORE OR LESS FOR EXISTING CURB REVEALS WHEN CURB REVEAL HEIGHT IS NOT BEING ALTERED.
2. ALTERNATE FLARE TREATMENTS MAY BE USED UPON APPROVAL BY THE ENGINEER, AS FOLLOWS:
   1) INTEGRAL WALK CURB, 6 INCHES WIDE, IF RAMP IS ADJACENT TO SOD, BRICK OR OBSTRUCTION.
   2) CORNER SIDE FLARE MAY BE 10:1 TO CONCRETE WALK; PROVIDE MIN. 3' CONCRETE AT THE TOP OF FLARE TO EXTENDED SIDEWALK LINE.
   3) ON ALTERATIONS, FLARES STEEPER THAN 10:1 MAY BE CONSTRUCTED IF PRE-APPROVED BY THE ENGINEER.
3. FOR DETECTABLE WARNING DETAILS, SEE PAGE 053G
4. WHERE EXISTING R/W WIDTH IS NOT SUFFICIENT FOR LANDING AND RAMP, CURB HEIGHT MAY BE REDUCED TO 4" AND CROSS SLOPE REDUCED TO 1% TO REDUCE RAMP LENGTHS.
4. RAMP MAY BE MOVED OUTSIDE THE LIMITS OF THE UNMARKED CROSSWALK BUT ONLY IF PRE-APPROVED BY TRAFFIC ENGINEERING.

CITY OF CINCINNATI
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DIVISION OF TRANSPORTATION DESIGN

CURB RAMPS
TYPES P, Q - HIGH LANDING

SCALE: NONE JAN 7, 2003

CITY ENGINEER

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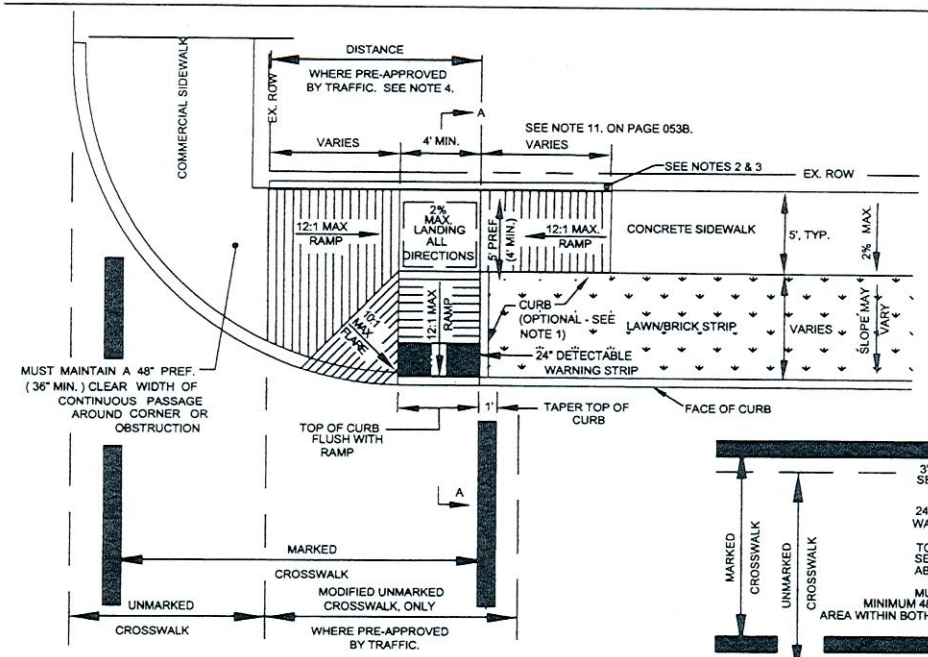
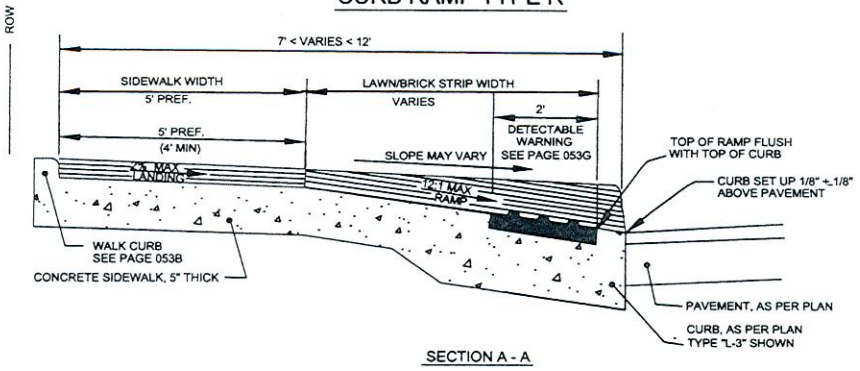
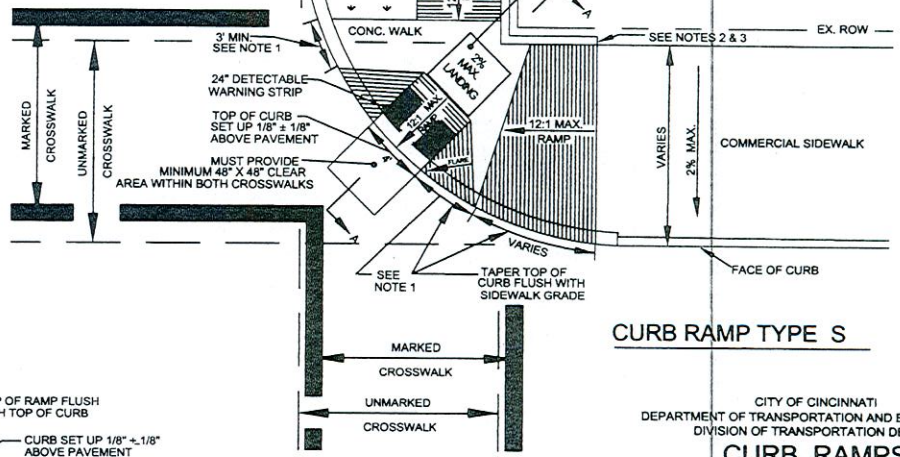


CURB RAMP TYPE R



SECTION A - A



CURB RAMP TYPE S

NOTES:
1. ALTERNATE FLARE TREATMENTS MAY BE USED UPON APPROVAL BY THE ENGINEER, AS FOLLOWS:
   1) INTEGRAL ROLLED CURBING AT 6-INCHES WIDTH IF RAMP IS ADJACENT TO SOD, BRICK OR OBSTRUCTION .
   2) CORNER SIDE FLARE MAY BE 10:1 TO CONCRETE WALK; PROVIDE MIN. 3' CONCRETE AT TOP OF FLARE TO EXTENDED SIDEWALK LINE.
   3) ON ALTERATIONS, FLARES STEEPER THAN 10:1 MAY BE CONSTRUCTED IF PRE-APPROVED BY ENGINEER.
2. TYPE W-1 AND RW -1 CURB AT BACK OF WALK IS FLUSH AT TOP OF SIDEWALK RAMPS. REVEAL IS GREATEST AT LANDING AND LENGTH IS BASED ON RAMPS SLOPES AND LENGTHS.
3. CURB AT BACK OF WALK MAY OR MAY NOT BE REQUIRED BASED ON GRADING. WALK CURBS WILL BE AS DIRECTED BY THE ENGINEER.
4. RAMP MAY BE MOVED OUTSIDE THE LIMITS OF UNMARKED CROSSWALK ONLY IF PRE-APPROVED BY TRAFFIC ENGINEERING.

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CURB RAMPS
TYPE R, S - MEDIUM LANDING

SCALE: NONE JAN 7, 2003

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ACCESSION NO. 27256

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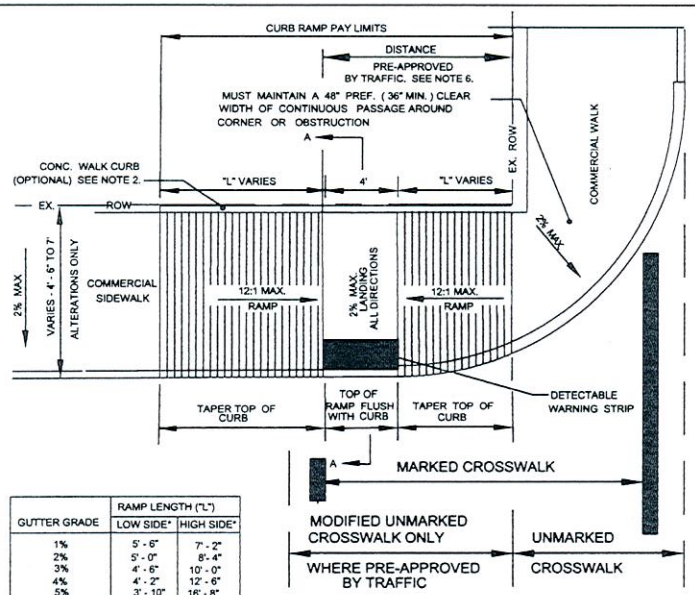
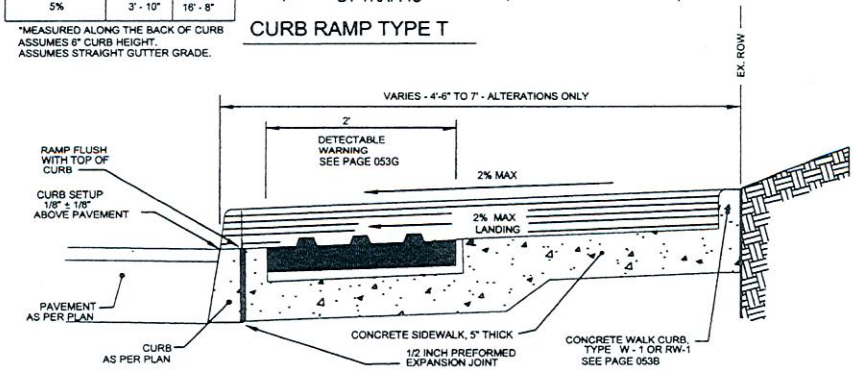


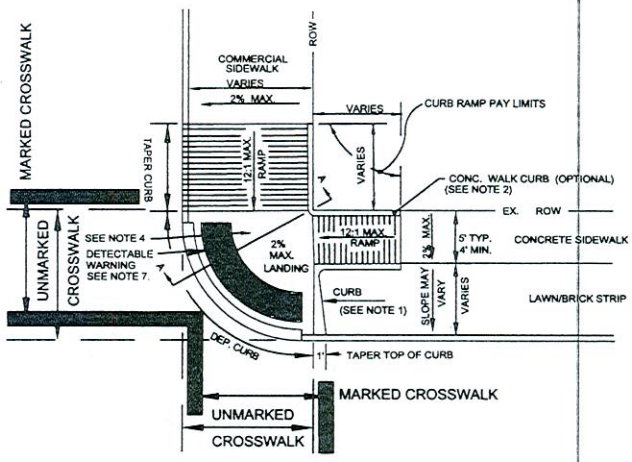
GUTTER GRADE	RAMP LENGTH ("L")	
	LOW SIDE*	HIGH SIDE*
1%	5' - 6"	7' - 2"
2%	5' - 0"	8' - 4"
3%	4' - 6"	10' - 0"
4%	4' - 2"	12' - 6"
5%	3' - 10"	16' - 8"

*MEASURED ALONG THE BACK OF CURB ASSUMES 6" CURB HEIGHT. ASSUMES STRAIGHT GUTTER GRADE.

CURB RAMP TYPE T



SECTION A - A



CURB RAMP TYPE U

NOTES:
1. ALTERNATE FLARE TREATMENTS MAY BE USED UPON APPROVAL BY THE ENGINEER. AS FOLLOWS:
   1) INTEGRAL WALK CURB AT 6-INCHES WIDTH IF RAMP IS ADJACENT TO SOD, BRICK, OR OBSTRUCTION.
   2) CORNER SIDE FLARE MAY BE 10:1 TO CONCRETE WALK; PROVIDE MIN. 3' CONCRETE AT TOP OF FLARE TO EXTENDED SIDEWALK LINE.
   3) ON ALTERATIONS, FLARES STEEPER THAN 10:1 MAY BE CONSTRUCTED IF PRE-APPROVED BY ENGINEER.
2. OPTIONAL CURB TYPE W-1 OR RW-1 AT BACK OF SIDEWALK IS FLUSH AT TOP OF SIDEWALK RAMPS. REVEAL IS GREATEST AT LANDING AND IS BASED ON RAMP'S EDGE SLOPES AND LENGTH. CURB MAY NOT BE REQUIRED TO MEET EXISTING GRADING.
3. RAMP LENGTHS FOR STREET GRADES GREATER THAN 5% MUST BE REVIEWED AND APPROVED BY THE ENGINEER.
4. MAINTAIN A PREFERRED 4' X 4' MIN. LANDING PERPENDICULAR TO THE CURB, FOR RAMP TYPE T, NOT IN DIAGONAL POSITION (TRANSITION RAMPS FACE EACH OTHER). A 5' MIN. LANDING LENGTH BETWEEN TRANSITION RAMPS MUST BE MAINTAINED.
5. WHEN SIDEWALK WIDTH IS 4'-6" OR LESS, THE SIDEWALK MAY BE INACCESSIBLE AND CONSIDERATION SHOULD BE GIVEN TO OBTAINING RIGHT OF WAY TO PROPERLY CONSTRUCT A CURB RAMP. ANY RAMPS LOCATED IN AREAS WITH 4'-6" SIDEWALK OR LESS MUST BE REVIEWED AND APPROVED BY THE ENGINEER.
6. RAMP MAY BE MOVED OUTSIDE LIMITS OF UNMARKED CROSSWALK ONLY IF PRE-APPROVED BY TRAFFIC ENGINEERING.
7. DETECTABLE WARNING TYPE "O" MAY BE CONSTRUCTED FOR SMALL RADII ON TYPE U RAMPS MUST BE APPROVED BY ENGINEER.

CITY OF CINCINNATI
DEPARTMENT OF TRANSPORTATION AND ENGINEERING
DIVISION OF TRANSPORTATION DESIGN

CURB RAMPS
TYPE "T", " U" LOW LANDING

SCALE: NONE JAN 7, 2003

CITY ENGINEER

ACCESSION NO. 27256

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APPENDIX E
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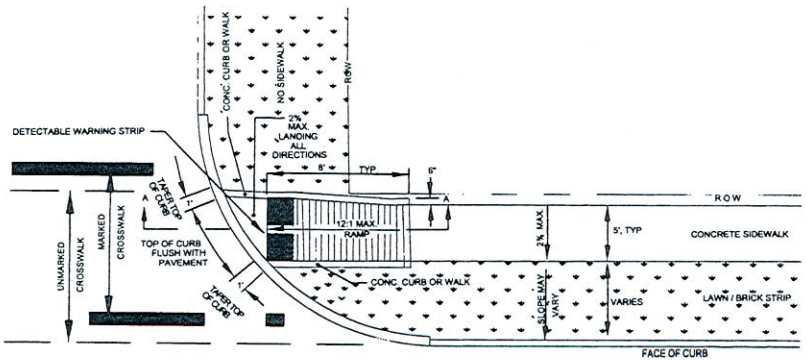
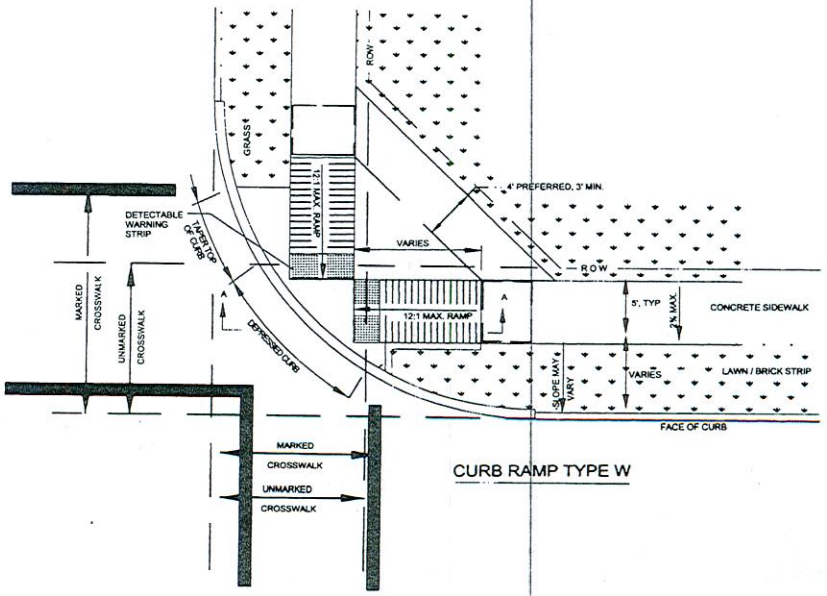
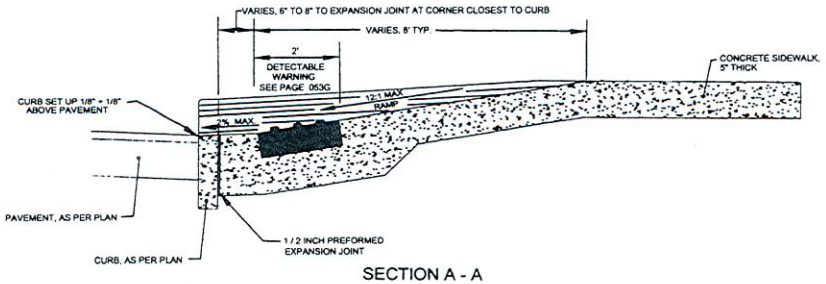


CURB RAMP TYPE V



CURB RAMP TYPE W



SECTION A - A

CITY OF CINCINNATI
DEPARTMENT OF TRANSPORTATION AND ENGINEERING
DIVISION OF TRANSPORTATION DESIGN

SIDEWALKS AND CURB RAMPS TYPE V AND W, LOW LANDING

SCALE: NONE JAN 7, 2003

CITY ENGINEER

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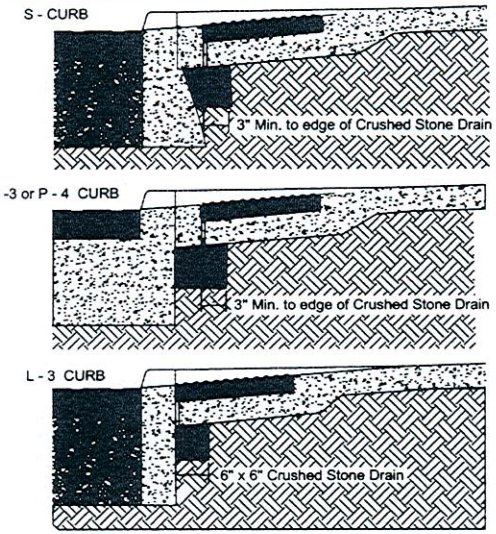
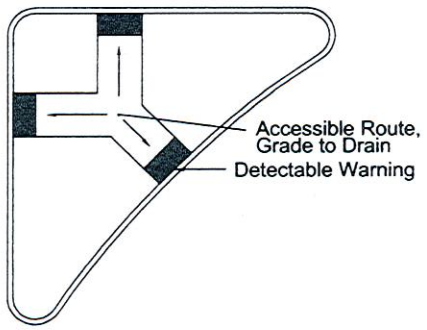
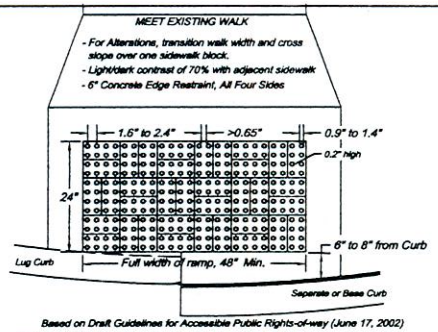
APPENDIX E
40F140



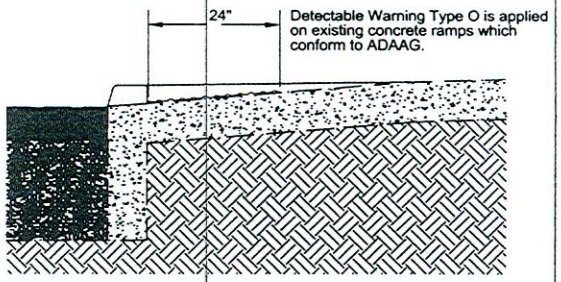
NEW CONSTRUCTION
DETECTABLE WARNING TYPE B



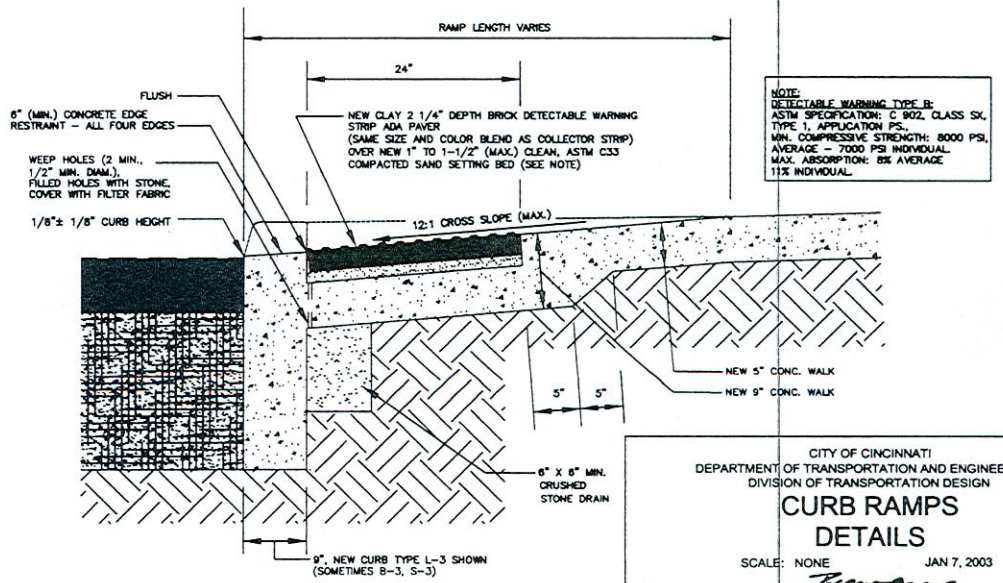
DETECTABLE WARNING AT
MEDIAN ISLANDS



TRUNCATED DOME SPACING



ALTERATION
DETECTABLE WARNING TYPE O



BRICK DETAILS

CITY OF CINCINNATI
DEPARTMENT OF TRANSPORTATION AND ENGINEERING
DIVISION OF TRANSPORTATION DESIGN

CURB RAMPS DETAILS

SCALE: NONE JAN 7, 2003

CITY ENGINEER

ACCESSION NO. 27256

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APPENDIX E
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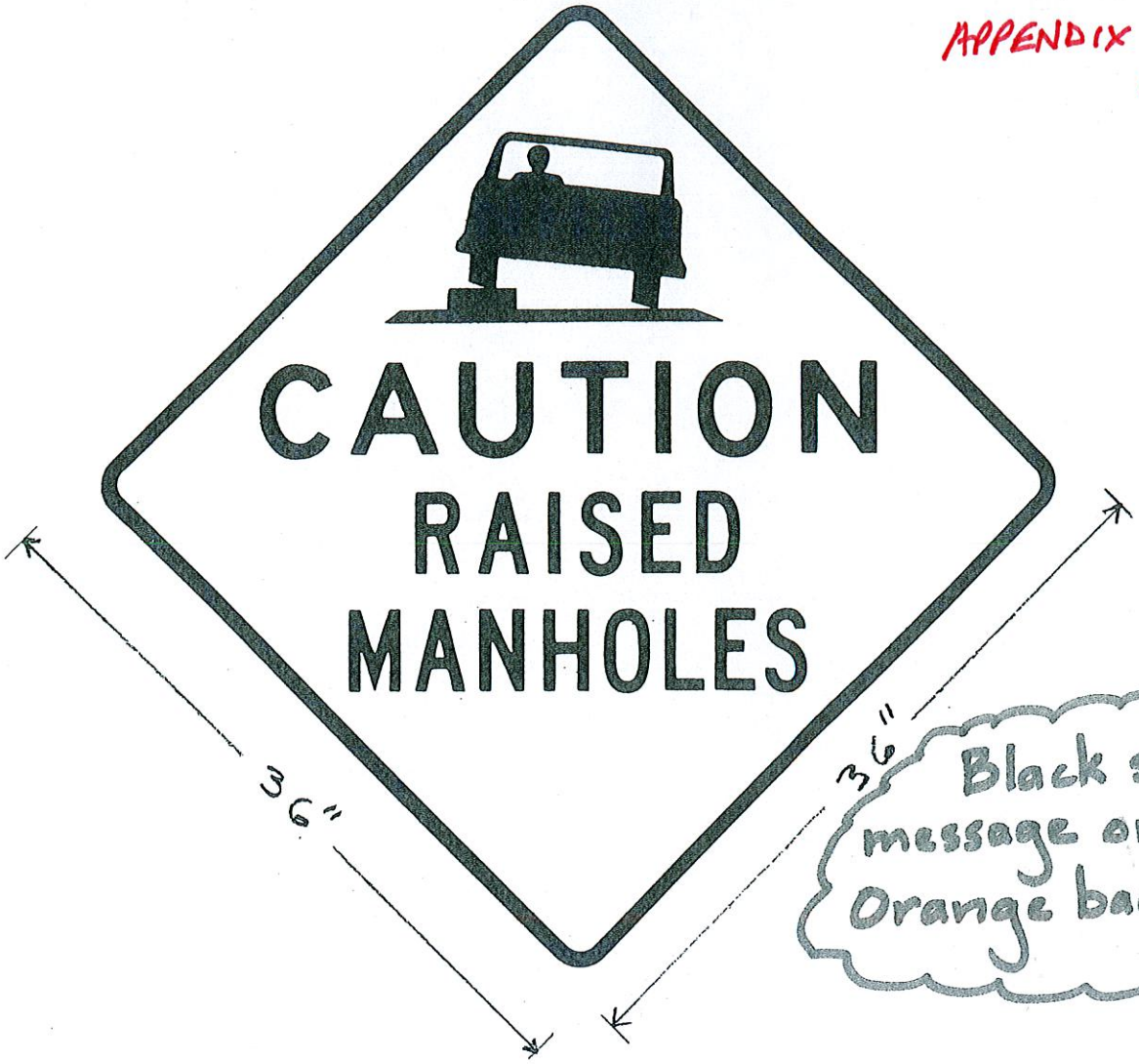
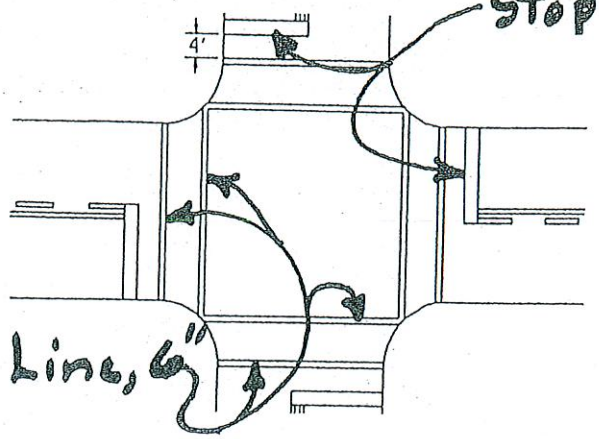


Black symbol/ message on an Orange background

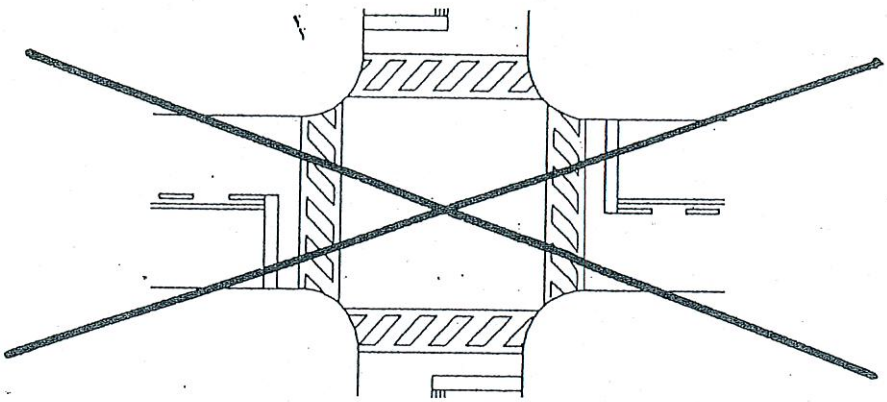
FIGURE	9.5" x 17"
LINE 1	4.5"E x 30"
SPACE	1.75"
LINE 2	4"C x 16"
SPACE	1.75"
LINE 3	4"C x 23"
BORDER	.75"
MARGIN	.75"

TYPICAL CROSSWALK MARKINGS

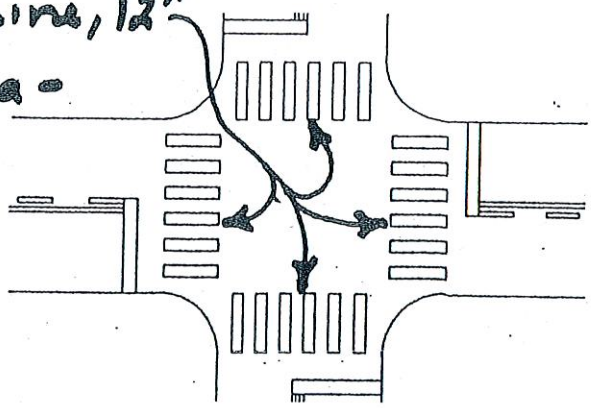
A - STANDARD CROSSWALK MARKING.



B - CROSSWALK MARKING WITH DIAGONAL LINES.

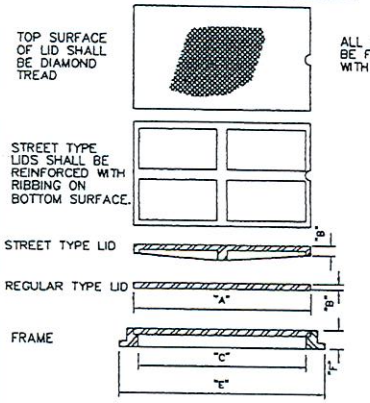


C - CROSSWALK MARKING WITH LONGITUDINAL LINES.

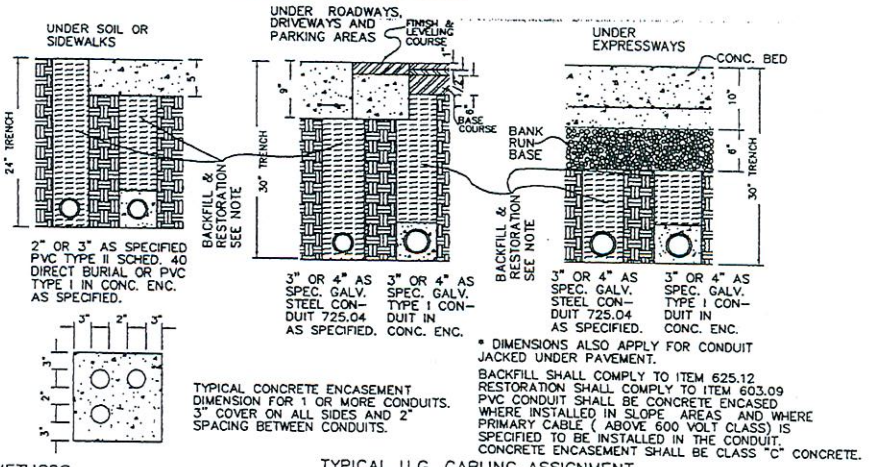


REF. SEC.
38-18

TYPICAL PULLBOX FRAME & COVER DIMENSIONS



TYPICAL CONDUIT INSTALLATIONS

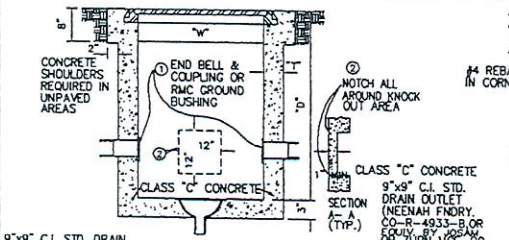


TYPICAL CONCRETE ENCASEMENT DIMENSION FOR 1 OR MORE CONDUITS. 3" COVER ON ALL SIDES AND 2" SPACING BETWEEN CONDUITS.

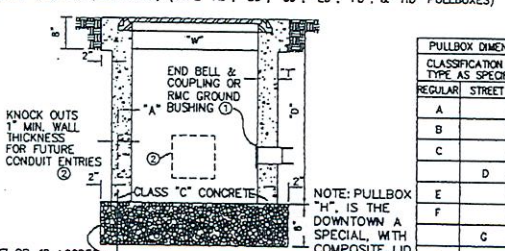
* DIMENSIONS ALSO APPLY FOR CONDUIT JACKED UNDER PAVEMENT.

BACKFILL SHALL COMPLY TO ITEM 625.12
RESTORATION SHALL COMPLY TO ITEM 603.09
PVC CONDUIT SHALL BE CONCRETE ENCASED WHERE INSTALLED IN SLOPE AREAS AND WHERE PRIMARY CABLE (ABOVE 600 VOLT CLASS) IS SPECIFIED TO BE INSTALLED IN THE CONDUIT. CONCRETE ENCASEMENT SHALL BE CLASS "C" CONCRETE.

TYPICAL PULLBOX CONSTRUCTION METHODS



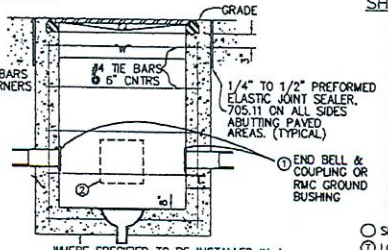
9"x9" C.I. STD. DRAIN OUTLET (NEENAH FOUNDRY CO.-R-4933-B, OR EQUIVALENT BY JOSAM OR ZURN MFG. CO. (SEE NOTES) USE WHERE DRAINAGE TO SEWER SYSTEM SPECIFIED (TYPE "AD", "BD", "CD", "ED", "FD", & "HD" PULLBOXES)



NOTE: PULLBOX "H", IS THE DOWNTOWN A SPECIAL, WITH COMPOSITE LID.

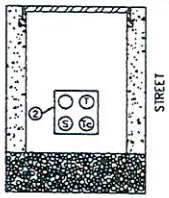
#7 OR #8 AGGREGATE COARSE GRAVEL THOUROUGHLY COMPACTED.

(TYPE "A", "B", "C", "E", "F", & "H" PULLBOXES)



WHERE SPECIFIED TO BE INSTALLED IN A ROADWAY OR DRIVEWAY, THE PULLBOX SHALL BE CONSTRUCTED (AS ABOVE) WITH 8" WALLS, REINFORCING STEEL & A STREET TYPE (HEAVY-DUTY) FRAME & COVER. (TYPE "D" & "G" PULLBOXES)

TYPICAL U.G. CABLING ASSIGNMENT SHOWING FOUR DUCT



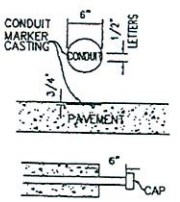
USE MANUFACTURER'S STANDARD SPACERS. INSTALL IN ACCORDANCE WITH MANUFACTURERS RECOMMENDED METHODS.

ALL CABLES INSTALLED IN CONDUIT SHALL BE IDENTIFIED BY RESPECTIVE CKT. ETC. AND SHALL BE MAINTAINED IN THE SAME DUCT THROUGHOUT THE ENTIRE RUN.

○ SPARE (RESERVE FOR COMM DIV.)
Ⓣ LOCAL TRAFFIC (TOP. ST. SIDE)
Ⓣ TRAFFIC SIG. INTERCONNECTION (BOTTOM-ST. SIDE)
Ⓢ STREET LIGHTING- (BOTTOM-FIELD SIDE)

CONDUIT MARKER

(USE WHERE CONDUIT TERMINATE UNDERGROUND)



DESIGN DATA

PULLBOX DIMENSIONS (INCHES) & CLASS						DESIGN COND. USE PER PULLBOX SIZE	FRAME & COVER DIMENSIONS (IN INCHES) **					
CLASSIFICATION OR TYPE AS SPECIFIED			INSIDE WALL	WALL THICKNESS MIN.	OVERALL DEPTH	MAX. NO. OF COND. PER PULLBOX WALL W/MAX. COND. SIZE*	NOMINAL SIZE OF LID	NOMINAL THICKNESS OF LID=1/16	NOMINAL SIZE OF OPENING ±1/8	NOMINAL FRAME SIZE ±1/8	FRAME DEPTH	DESIGN NO.
REGULAR	STREET	W/DRAIN	"W"	"T"	"D"		"A"	"B"	"C"	"E"	"F"	
A		AD	10X 18	3	30	2	10 3/4"x18 3/4"	1/2	10x 18	16x 24	3	R-6684-2 E-1840
B		BD	17X 17	3	30	2	17 5/8"x17 5/8" 18"x 18"+ 1/8"	1/2	17x 17	22x 22	3	R-6681-2 E-1846
C		CD	24X 24	3	36	4 & STREET CROSSING	23 3/4"x23 3/4" 24"x 24"	1	22x 22	30x 30	3	R-6680-2 E-1850
	D		22X 22	8	36	4	23 3/4"x23 3/4"	1 1/2	22x 22	28x 28	4	R-1878-A5
E		ED	24X 36	4	36	4 (24" SIDES) 6 (36" SIDES)	24"x 36" 24"x 37"	1	23x 34 3/4 24x 36	29x 41 29 1/4x 41	3 1/8 2 1/2	R-6685-5 E-1871
F		FD	36X 36	4	42	12	37"x 37"	1	36x 36	42x 42	3 1/2	E-1843
	G		36X 36	8	42	12	37 1/2"x37 1/2"	1 1/2	36x 36	42x 42	4	R-1878-A10
H		HD	20X 20	3	32	2 & STREET CROSSING	21 13/16"x21 13/16"	1 3/4	19 13/16 x 19 13/16	23 5/16 x 23 5/16	2 7/16	R-1883-E4 PA222298A00

FRAME ONLY
COMPOSITE LID

* REFER TO ACCEPTABLE FRAMES & COVERS FURNISHED BY: CHRIS ERHARDT FOUNDRY & MACHINE CO., CINCINNATI, OHIO ("E" NUMBERS); NEENAH FOUNDRY CO., NEENAH, WISC. ("R" NUMBERS)

** IF SPECIFIED, PULLBOX LIDS MAY BE COMPOSITE MATERIAL MEETING DETAILED SPECIFATIONS PROVIDED IN THE PLANS.

NOTES:

FED. AID NO.	STATE	PROJECT	SHEET NO.
5	OHIO		

FRAME & COVER**

REGULAR TYPE PULLBOX FRAMES & COVERS SHALL BE CONSTRUCTED OF GRAY IRON MEETING THE REQUIREMENTS OF ASTM-A48, CLASS 30, WITH MINIMUM TENSILE STRENGTH OF 30,000 PSI.

STREET TYPE PULLBOX FRAMES & COVERS SHALL BE CONSTRUCTED OF DUCTILE IRON MEETING THE REQUIREMENTS OF ASTM A-536, GRADE 60-40-18, WITH A MIN. TENSILE STRENGTH OF 60,000 PSI.

ALL FRAMES & COVERS SHALL BE OF UNIFORM QUALITY & FREE FROM BLOWHOLES, HARDSPOTS, SHRINKAGE DISTORATION, & OTHER DEFECTS, AND SHALL HAVE THE DIMENSIONS SPECIFIED IN THE DESIGN DATA TABLE.

COVERS (OR LIDS) SHALL BE TREADED AND EQUIPPED WITH PICK HOLES FOR LIFTING LID OFF FRAME. WHEN FLANGE AND LID ARE NOT CASTED IN THE PULLBOX, THEY SHOULD BE BOLTED DOWN & CAPPED WITH CONCRETE.

PULLBOX CONSTRUCTION

PULLBOX SHALL BE CONSTRUCTED AS SHOWN, & WITH FRAME, SHALL BE CAST IN PLACE, OR APPROVED PRE-CAST WITH FRAME PRECAST INTO BOX AND WITH REIN., EXCEPT STREET TYPE BOXES.

EXISTING PULLBOXES MAY BE MODIFIED WITH CONCRETE BRICK MEETING REQUIREMENTS OF ITEM 704.02. IF CONCRETE BRICK IS USED, THE SIDE WALLS SHALL HAVE A MINIMUM THICKNESS OF 7 1/2", AND BRICK MASONRY SHALL HAVE CONSTRUCTED IN ACCORDANCE WITH ITEM 602.

STREET TYPE PULLBOXES SHALL BE CAST-IN-PLACE CLASS "C" CONCRETE WITH REINFORCING MEETING THE REQUIREMENTS OF ITEM 709.01

DRAINAGE

WHERE A PULLBOX IS SPECIFIED TO BE DRAINED TO THE SEWER SYSTEM, A 9"x9" CAST IRON STANDARD DRAIN OUTLET, WITH LID, (NEENAH FOUNDRY CO. R-4933-B, OR EQUIVALENT BY JOSAM OR ZURN MGF. CO.) SHALL BE INSTALLED AT THE BOTTOM OF PULLBOX AND CONNECTED TO A 3" CAST IRON PIPE DRAIN LINE TO THE SPECIFIED SEWER CONNECTION. DRAIN LINE SHALL HAVE A MIN. SLOPE OF 1/4" PER FOOT TOWARD SEWER. CAST IRON PIPE, ELBOWS, & OTHER FITTINGS SHALL CONFORM TO REQUIREMENTS OF ASTM-A-74.

UNLESS OTHERWISE SPECIFIED, PULLBOX DRAINAGE SHALL CONSIST OF 6" OF COMPACTED, COARSE, WASHED GRAVEL #7 OR #8 AGGREGATE PER ITEM 703.

CONDUIT ENTRIES

① A CONDUIT ENTRY THROUGH A PULLBOX WALL SHALL CONSIST OF AN END BELL & COUPLING WHICH SHALL PROTRUDE BEYOND THE OUTER FACE OF THE WALL, SUFFICIENT IN SIZE & LENGTH FOR CONNECTION TO THE PROPOSED DUCT SYSTEM IF RMC CONDUIT, A GROUND BUSHING MUST BE PROVIDED.

② A SECTION OF EACH WALL SHALL BE KNOCHED AND RECESSED FOR PROPOSED AND FUTURE CONDUIT ENTRIES. (SEE DETAIL)

WHEN CONDUITS ARE INSTALLED, ALL OPENINGS & SPACES SHALL BE FILLED WITH CLASS "C" CONCRETE & FINISHED OR POINTED UP TO SATISFACTION OF THE ENGINEER.

IN CUTTING OR BREAKING INTO WALLS WHERE THE INSTALLATION OF ADDITIONAL CONDUIT IS SPECIFIED CONNECTED TO AN EXISTING PULLBOX, ANY DAMAGE TO THE WALL SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

UNDERGROUND CONDUIT

ALL CONDUIT SPECIFIED AS PVC TYPE I, (TYPE DB OR SCHEDULE 40) SHALL BE CONCRETE ENCASED. (NOTE:- ALL UNDERGROUND CONDUIT SHALL BE PVC, CONCRETE ENCASED, UNLESS SPECIFIED OTHERWISE ON THE PLANS.)

ALL CONDUIT SPECIFIED AS DIRECT BURIAL SHALL BE:
PVC- TYPE II (INDUSTRIAL SCHEDULE 40- HEAVY WALL) OR,
RIGID METAL CONDUIT (RMC)- 725.04

MAXIMUM CONDUIT RUN BETWEEN PULLBOXES SHALL NOT EXCEED 150 FT. (UNLESS SPECIFIED ON PLANS). EACH UN-USED CONDUIT SHALL BE PROVIDED WITH A #10 AWG. SOLID COPPER PULL WIRE.

BACKFILL

EXCAVATED MATERIAL SHALL BE USED AS BACKFILL.

BACKFILL SHALL BE PLACED IN LAYERS AND TAMPED TO PREVENT FUTURE SETTLEMENT OF BACKFILL MATERIAL IN ACCORDANCE WITH 625.12

RESTORATION

SHALL COMPLY WITH 603.09

SPECIFICATION NUMBERS REFER TO OHIO DEPT. OF TRANSP., "CONSTR. & MATERIAL" SPECS. & ASTM SPECIFICATIONS.

CITY OF CINCINNATI SUPPLEMENTAL SPECS. TO O.D.O.T. C & M SPECS. ITEM 1322 ALSO APPLIES FOR CITY PROJECTS AND CONTRACTS.

STATE OF OHIO — STEVEN GERALD BAILEY — 49331 — REGISTERED PROFESSIONAL ENGINEER

S.C.H.	S Bailey	8/3/04	UPDATE
T.E.			
	REVISION	DATE	BY
	APPROVED	9/14/94	

ELEC.SERVICE & UNDERGROUND SYSTEMS (ES-2)

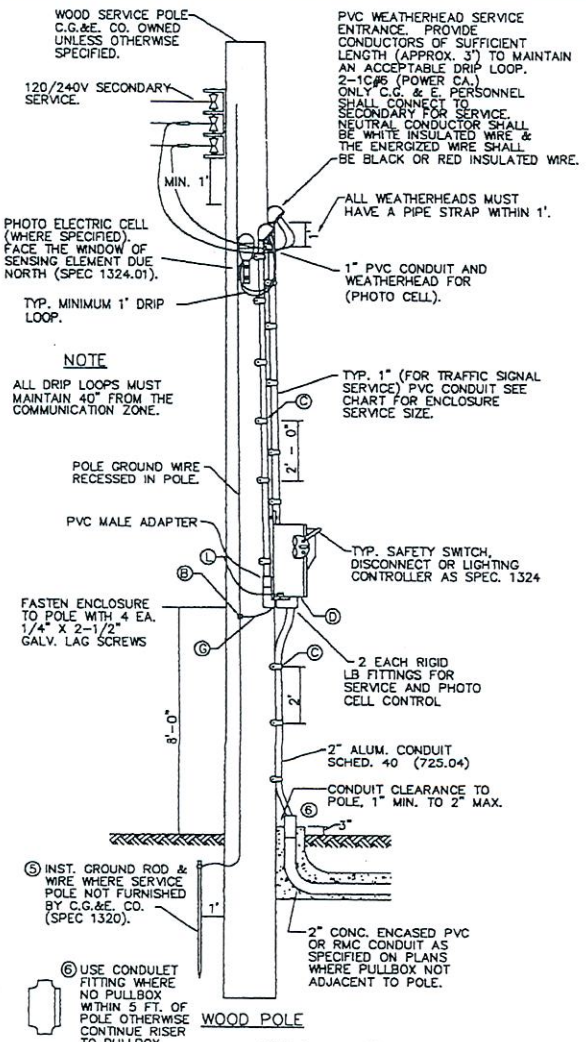
STANDARD PULLBOXES & CONDUIT SYSTEM

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

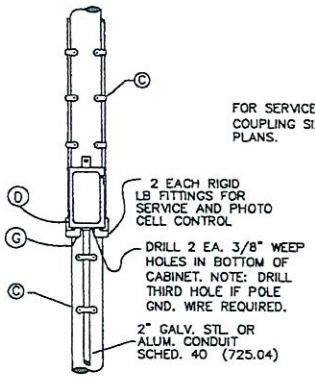
APPROVED Steve Bailey DATE 3-4-99

SCALE	SOURCE	DRAWN	FILE NO.
			ES-2-1

APPENDIX H 1/6



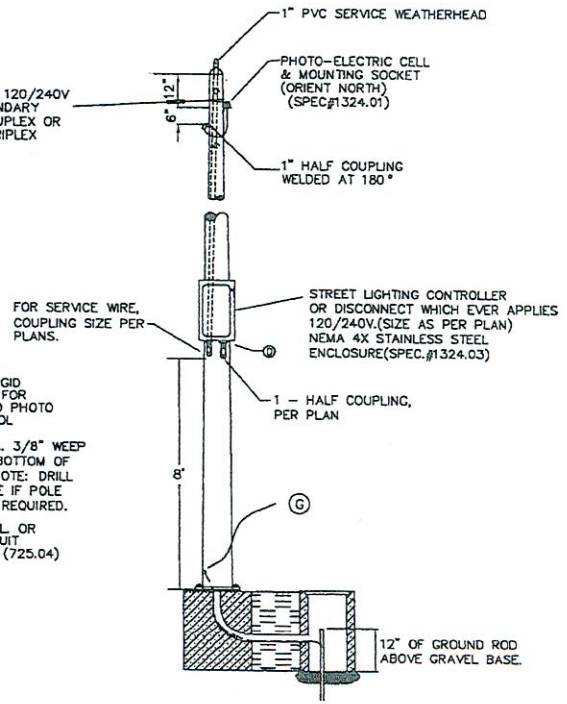
TYPICAL INSTALLATION WHERE MAIN SERVICE DISCONNECT IS LOCATED ON C.G.&E. WOOD POLE CONTROL CABINET, ISLAND LIGHTING SYSTEM, OR OTHER SPECIFIED EQUIPMENT.



FRONT VIEW
(WOOD POLE)

© CONDUIT CLAMPS USE DOUBLE HOLE TYPE.

SECURE WITH 2-1/2" LG. GALV. NAILS



STEEL POLE

LOAD SIZING			
CABINET OR ENCLOSURE SIZE (AMPERES)	POWER CABLE SIZE (AWG)	MAX. FUSE SIZE (AMPS)	POWER SERVICE CONDUIT SIZE (INCHES)
UP TO 50	#6	40	1
50 TO 80	#4	65	1-1/2
80 TO 100	#2	90	1-1/2

NOTES

ENCLOSURES

SAFETY SWITCHES SHALL BE NEMA 4X (STAINLESS STEEL) PER SPECIFICATION 1324.03. SWITCHES SHALL BE RATED 240 VOLTS SERVICE (MINIMUM), 3 WIRE, 2 POLE WITH SOLID NEUTRAL.

FUSES SHALL BE 250-VOLT CARTRIDGE TYPE. UL CLASS RK-1, SIZED PER ENCLOSURE AMPERE SIZE (SEE CHART).

REFER TO SPEC 1324 FOR OTHER SPECIFIED ENCLOSURES.

GROUNDING

GROUND ALL METAL NONCURRENT CARRYING EQUIPMENT INCLUDING CONDUIT MESSENGER WIRE, POLE, ENCLOSURE, ENCLOSURE EQUIPMENT PANELS, OR CHASSIS AND GROUND ROD.

ENTRANCE FITTINGS

FURNISH AND INSTALL ANY REQUIRED FITTINGS INCLUDING DRILLING HOLES AND WELDING THE THREADED PIPE NIPPLE TO POLE. PAINT HOLES AND NIPPLES WITH ZINC-RICH SPOT PRIMER PER SPEC 1317.

CONDUIT

PVC CONDUIT SHALL BE SCHEDULE 40.

ALUMINUM CONDUIT SHALL BE SCHEDULE 40

SERVICE CABLE

CABLE SHALL BE:

1. DUPLEX (NO. 4 AWG MINIMUM ACSR INCLUDING A BARE ALUMINUM NEUTRAL). CONNECT TO COPPER POWER CABLES WITH APPROVED BI-METALLIC SPLIT BOLTS OR BUTT CONNECTORS.

   THE INSULATED, UNGROUNDED CONDUCTOR SHALL BE HIGH-DENSITY POLYETHYLENE, 600V RATED, SUITABLE FOR EXPOSURE TO SUNLIGHT AND ATMOSPHERIC ENVIRONS. CABLE SHALL MEET THE REQUIREMENTS OF ICEA S-61-4.02/NEMA WCS-1989 SPECS.

   OR

2. TWO EACH RHN/RHW/USE INSULATED POWER CABLES (SPEC 1323.01) SUPPORTED WITH 1/4-INCH MESSENGER WIRE. (SPEC. 1323.02)

REQUEST FOR SERVICE

IN REQUESTING ELECTRIC SERVICE FROM THE C. G. & E. CO., CONTACT TRAFFIC SERVICES BUREAU, 352-3705.

CG&E CREWS SHALL MAKE THE POWER WIRING CONNECTION TO THEIR SECONDARY LINES.

① PVC COUPLING
PROVIDE STAINLESS STEEL BANDING FOR SECURING CONDUIT CLEVISES AND CABINETS TO STEEL POLES.

② FOR CONDUITS, USE 3/4" WIDE X .020" THICK BANDING.

③ FOR ENCLOSURES, USE 3/4" WIDE X .030" THICK BANDING AND SERVICE CLEVIS.

④ SPLIT BOLT CONNECTOR: DOSSERT, BLACKBURN, OR APPROVED EQUAL.

© GALVANIZED STEEL OR MALLEABLE IRON CONDUIT CLAMPS. PROVIDE 2' SPACING C/C FOR ALL CONDUIT 2' ABOVE ENCLOSURES AND 2' SPACING FOR CONDUIT BETWEEN ENCLOSURES TO GRADE. SECURE TO WOOD POLES WITH GALV. NAILS. SEE DETAIL.

⑩ DRILL 3/8" DRAIN HOLE IN LOWEST PART OF CABINETS AND FITTINGS.

⑫ SOLID NO. 6 AWG BARE COPPER GROUND WIRE.

⑯ TEMPORARY THREE BOLT CABLE SUSPENSION CLAMP. SERVE WITH 5' TO 7' MAUSS BEFORE REMOVING. (SEE STANDARD DRAWING ES-3-4.)

⑰ GROUNDING LUGS: BLACKBURN L-125, T&B 1300 SERIES, OR APPROVED EQUAL. GROUNDING LUG MAY BE PROVIDED IN SIDE ENCLOSURE. IN THIS CASE, FEED GROUND WIRE THROUGH ADDITIONAL ENCLOSURE DRAIN HOLE.

STATE OF OHIO
STEVEN GERALD BAILEY
46031
PROFESSIONAL ENGINEER

S.C.H.		8/3/04	UPDATE
T.E.		3/1/98	
R.R.R.		6/26/92	

5	OHIO		

ELEC. SERVICE & UNDERGROUND SYSTEMS (ES-2)

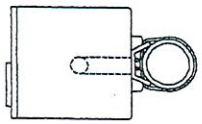
ELECTRIC SERVICE
120 VOLTS

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED Steve Bailey DATE 3-4-99

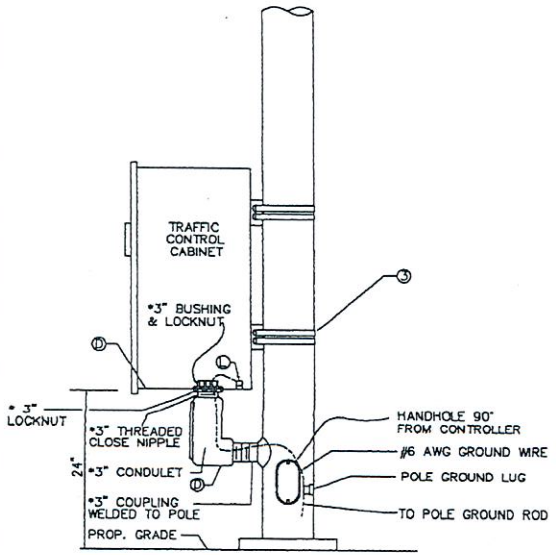
SCALE	APPROVED	DATE		PAGE NO.
	ES - 16 7/1/72	CDS ASSOCIATES		ES-2-2

APPENDIX H 2/6



TOP VIEW

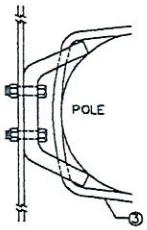
⑤ TYP. TOP VIEW OF CABINET MOUNTED ON STEEL POLE



SIDE VIEW

TYP. CONTROLLER CABINET INSTALLATION ON A STEEL POLE

* 3" CONDUIT AND FITTINGS UNLESS OTHERWISE SPEC.

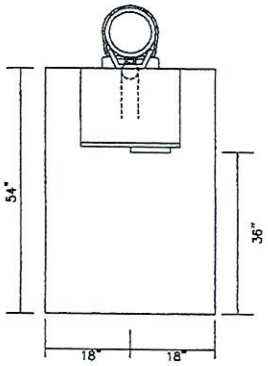


① TYP. CABINET MOUNTING BRACKET (2 EA. PER CABINET) FURNISH WITH CABINET

SECURE EACH BRACKET TO CABINET WITH 2 EACH 3/8" STN. STL. BOLTS, NUTS & WASHERS. THREADED END OF BOLT TOWARD INSIDE OF CABINET.

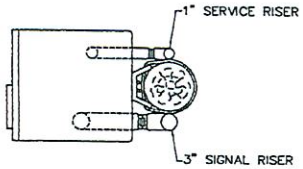
NOTE:

WHEN CONTROLLER IS LOCATED IN A SODDED AREA A 54" x 36" CONCRETE PAD SHALL BE POURED.

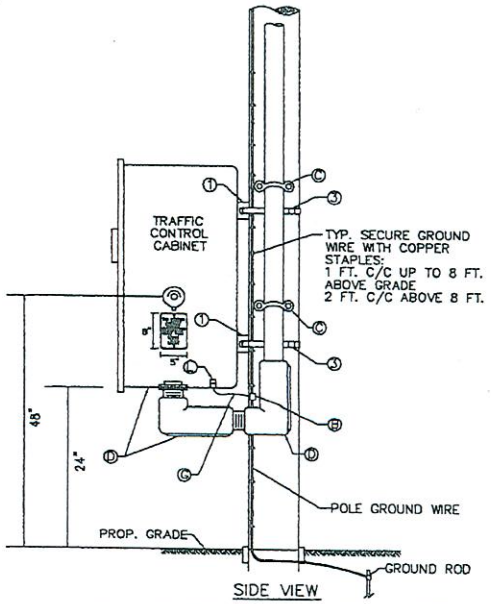


© CONDUIT STRAPS USE DOUBLE HOLE TYPE.

SECURE WITH 2-1/2" LG. GALV. NAILS



TOP VIEW



SIDE VIEW

TYP. CONTROLLER CABINET INSTALLATION ON A WOOD POLE

5	OHIO		

NOTES

GENERAL

THE CABINET MAY CONTAIN A TRAFFIC SIGNAL CONTROLLER OR MAY BE A MASTER CONTROLLER, RELAY STATION, DETECTOR OR COUNTER STATION AS SPECIFIED ON THE PLANS.

GROUNDING

GROUND ALL METAL, NON-CURRENT CARRYING EQUIPMENT, INCLUDING CONDUIT, MESSENGER WIRE, POLE, CABINET, CABINET PANELS OR CHASSIS, AND GROUND ROD.

ENTRANCE FITTINGS

FURNISH AND INSTALL ANY REQUIRED FITTINGS INCLUDING DRILLING HOLES AND WELDING THE THREADED PIPE NIPPLE TO POLE. PAINT HOLES AND NIPPLES WITH ZINC-IT SPOT PRIMER PER SPEC. 1317.

CONDUIT

PVC CONDUIT AND FITTINGS SHALL BE SCHEDULE 40. STEEL CONDUIT AND FITTINGS SHALL BE GALVANIZED AND MEET SPEC. 725.04.

REQUEST FOR SERVICE

IN REQUESTING ELECTRIC SERVICE FROM THE CG&E COMPANY, CONTACT TRAFFIC ENGINEERING 352-3737.

① CABINET MOUNTING BRACKETS

MOUNTING BRACKETS SHALL BE FURNISHED WITH THE TRAFFIC CONTROL CABINET. WHERE THE CITY FURNISHES A TYPE OF TRAFFIC CONTROL CABINET WHICH HAS NO BRACKETS, THE CITY WILL FURNISH BRACKETS AS SHOWN IN THE DETAIL. PROVIDE STAINLESS STEEL BANDING AND HARDWARE FOR SECURING CONDUIT AND CABINETS TO STEEL POLES.

② FOR BANDING CONDUITS TO POLES, USE 3/4" WIDE X .020" THICK STN. STL. BANDING.

③ FOR BANDING CABINETS TO POLES, USE 3/4" WIDE X .030" THICK STN. STL. BANDING. (FOR LARGER TC CABINETS, USE TWO BANDS FOR EACH BRACKET.)

Ⓑ SPLIT BOLT CONNECTOR; DOSSERT, BLACKBURN, OR APPROVED EQUAL.

© GALVANIZED STEEL ALUMINUM OR MALLEABLE IRON DOUBLE HOLE CONDUIT CLAMPS. PROVIDE 2' SPACING C/C FOR ALL CONDUIT ABOVE ENCLOSURES AND 2' SPACING FOR CONDUIT BETWEEN ENCLOSURES TO GRADE.

Ⓓ DRILL 3/8" DRAIN HOLE IN LOWEST PART OF CABINETS AND FITTINGS.

Ⓕ GROUNDING LUGS: BLACKBURN L-125, T & B 1300 SERIES, OR APPROVED EQUAL. GROUNDING LUG MAY BE PROVIDED INSIDE ENCLOSURE. IN THIS CASE, FEED GROUND WIRE THROUGH ADDITIONAL ENCLOSURE DRAIN HOLE.

REFER TO STD. DWG ES-2-3 FOR ELECTRIC SERVICE AND RISER DETAILS.

Ⓖ #6 AWG BARE COPPER GROUND WIRE

STATE OF OHIO STEVEN GERALD BAILEY 40331 REGISTERED PROFESSIONAL ENGINEER

S.C.H.		8/18/04	UPDATE	
T.E.		3/1/98		
R.R.R.		6/3/92		

TRAFFIC SIGNAL INSTALLATIONS (ES-3)

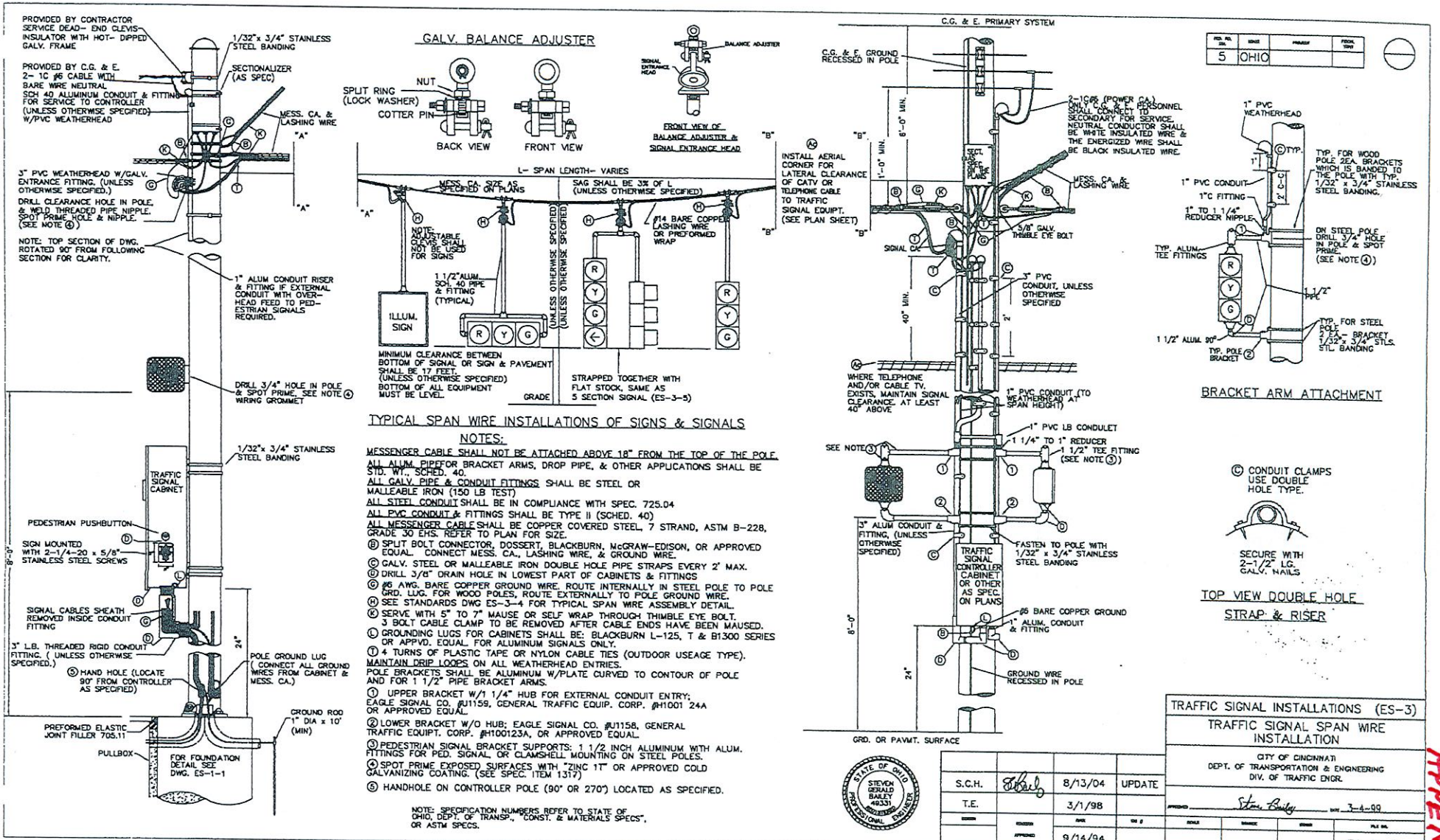
TRAFFIC CONTROL CABINET INSTALLATIONS

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED Steve Bailey DATE 7-4-99

SCALE	ES - 8 4/19/78	CDS ASSOCIATES	ES-3-1

APPENDIX H 3/6



TYPICAL SPAN WIRE INSTALLATIONS OF SIGNS & SIGNALS

NOTES:

MESSENGER CABLE SHALL NOT BE ATTACHED ABOVE 18" FROM THE TOP OF THE POLE.

ALL ALUM. PIPE FOR BRACKET ARMS, DROP PIPE, & OTHER APPLICATIONS SHALL BE STD. WT., SCHED. 40.

ALL GALV. PIPE & CONDUIT FITTINGS SHALL BE STEEL OR MALLEABLE IRON (150 LB TEST)

ALL STEEL CONDUIT SHALL BE IN COMPLIANCE WITH SPEC. 725.04

ALL PVC CONDUIT & FITTINGS SHALL BE TYPE II (SCHED. 40)

ALL MESSENGER CABLE SHALL BE COPPER COVERED STEEL, 7 STRAND, ASTM B-228, GRADE 30 EHS. REFER TO PLAN FOR SIZE.

(B) SPLIT BOLT CONNECTOR, DOSSERT, BLACKBURN, McGRAW-EDISON, OR APPROVED EQUAL. CONNECT MESS. CA., LASHING WIRE, & GROUND WIRE.

(C) GALV. STEEL OR MALLEABLE IRON DOUBLE HOLE PIPE STRAPS EVERY 2' MAX.

(D) DRILL 3/8" DRAIN HOLE IN LOWEST PART OF CABINETS & FITTINGS

(G) #6 AWG. BARE COPPER GROUND WIRE. ROUTE INTERNALLY IN STEEL POLE TO POLE GRD. LUG. FOR WOOD POLES, ROUTE EXTERNALLY TO POLE GROUND WIRE.

(H) SEE STANDARDS DWG ES-3-4 FOR TYPICAL SPAN WIRE ASSEMBLY DETAIL.

(K) SERVE WITH 5" TO 7" MAUSE OR SELF WRAP THROUGH THIMBLE EYE BOLT. 3 BOLT CABLE CLAMP TO BE REMOVED AFTER CABLE ENDS HAVE BEEN MAUSED.

(L) GROUNDING LUGS FOR CABINETS SHALL BE: BLACKBURN L-125, T & B1300 SERIES OR APPVD. EQUAL. FOR ALUMINUM SIGNALS ONLY.

(T) 4 TURNS OF PLASTIC TAPE OR NYLON CABLE TIES (OUTDOOR USEAGE TYPE).

MAINTAIN DRIP LOOPS ON ALL WEATHERHEAD ENTRIES.

POLE BRACKETS SHALL BE ALUMINUM W/PLATE CURVED TO CONTOUR OF POLE AND FOR 1 1/2" PIPE BRACKET ARMS.

(1) UPPER BRACKET W/1 1/4" HUB FOR EXTERNAL CONDUIT ENTRY; EAGLE SIGNAL CO. #U1159, GENERAL TRAFFIC EQUIP. CORP. #H1001 24A OR APPROVED EQUAL.

(2) LOWER BRACKET W/O HUB; EAGLE SIGNAL CO. #U1158, GENERAL TRAFFIC EQUIPT. CORP. #H100123A, OR APPROVED EQUAL.

(3) PEDESTRIAN SIGNAL BRACKET SUPPORTS: 1 1/2 INCH ALUMINUM WITH ALUM. FITTINGS FOR PED. SIGNAL, OR CLAMSHELL MOUNTING ON STEEL POLES.

(4) SPOT PRIME EXPOSED SURFACES WITH "ZINC IT" OR APPROVED COLD GALVANIZING COATING. (SEE SPEC. ITEM 1317)

(5) HANDHOLE ON CONTROLLER POLE (90° OR 270°) LOCATED AS SPECIFIED.

NOTE: SPECIFICATION NUMBERS REFER TO STATE OF OHIO, DEPT. OF TRANSP., "CONST. & MATERIALS SPECS", OR ASTM SPECS.

S.C.H.		8/13/04	UPDATE
T.E.		3/1/98	
	APPROVED	9/14/94	

STATE OF OHIO — STEVEN GERALD BAILEY — 49331 — REGISTERED PROFESSIONAL ENGINEER

5	OHIO		

TRAFFIC SIGNAL INSTALLATIONS (ES-3)

TRAFFIC SIGNAL SPAN WIRE INSTALLATION

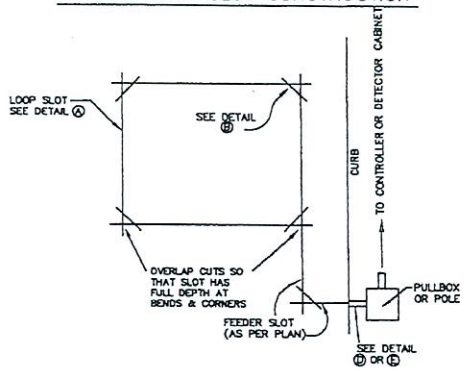
CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED Steve Bailey DATE 3-4-99

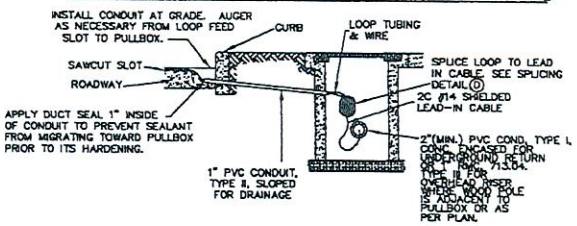
ES-3-2

APPENDIX H 4/6

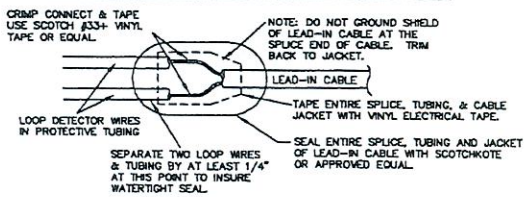
TYPICAL LOOP SLOT CONSTRUCTION



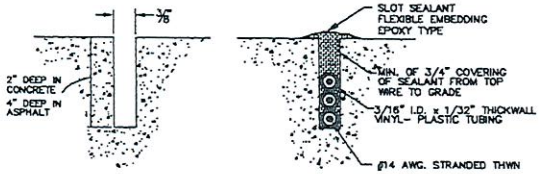
CONNECTION FROM SLOT TO PULLBOX DETAIL Ⓒ



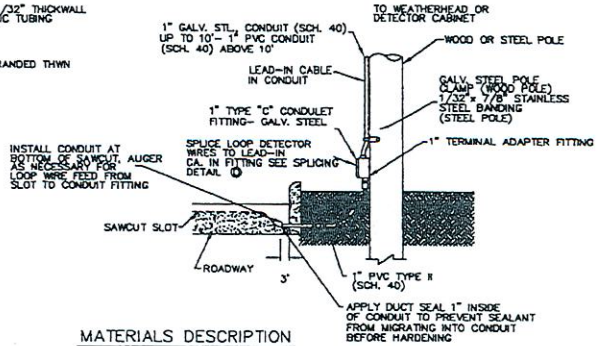
LOOPWIRE TO LEAD-IN CA. SPLICE DETAIL Ⓓ



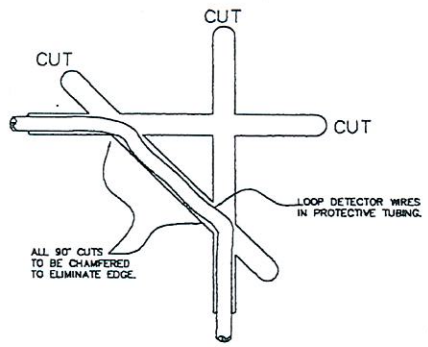
LOOP DETECTOR SLOT DETAIL Ⓐ



CONNECTION FROM SLOT TO CONDUIT FITTING ON POLE DETAIL Ⓔ



BEND & CORNER HOLE DETAIL Ⓑ



MATERIALS DESCRIPTION

DETECTADUCT:
- LOOP DETECTOR WIRE – #14 AWG. THWN, STRANDED
- LOOP DETECTOR WIRE PROTECTIVE TUBING – FLEXIBLE VINYL PLASTIC TUBING 3/16" I.D., 1/32" WALL THICKNESS, 1/4" O.D. RESISTANT TO WATER, SALT, OILS, SOLVENTS & HIGHLY ABRASIVE RESISTANT.
- LEAD- IN CABLE – 2C#14 AWG. STRANDED, SHIELDED, TWISTED- PAIR, POLYETHYLENE INSULATED, CROME VINYL JACKETED, RATED 750 VOLTS
- LOOP SLOT SEALANT- FLEXIBLE EMBEDDING EPOXY TYPE, "GOUDLES" AS MANUFACTURED BY PRECO OR DETECTA LOOP SEALANT BY 3M OR APPROVED EQUAL.
- SPLICE KITS – PERMANENT WATER RESISTANT- COMPLIANCE WITH ANSI C119.1, SCOTCHKOTE OR APPROVED EQUAL

LOOP DETECTOR AMPLIFIER CABLE CONNECTIONS DETAIL Ⓕ

CONNECTOR (MS/AN 3102A- 18- 1P)

PIN	FUNCTION
A	117 VOLT A.C. COMMON
B	CALL RELAY COMMON
C	117 VOLT A.C.
D	LOOP CONNECTION
E	LOOP CONNECTION
F	CALL RELAY- N.O. CONTACTS
G	CALL RELAY- N.O. CONTACTS
H	EQUIPMENT GROUND
J	SPARE
K	SPARE

INSTALLATION NOTES

1. LAYOUT LOOP ON STREET AS PER PLAN SHEET. CHECK LAYOUT TO SEE THAT THE SAWCUT LINE IS FREE FROM OBSTRUCTIONS SUCH AS MANHOLES, PARALLEL CONSTRUCTION JOINT RUNS CLOSER THAN 2' FROM CUT, PATCHES IN PAVEMENT, CRACKED OR BROKEN OUT AREAS AND OTHER SUCH OBSTRUCTIONS OR MATERIAL CONFLICTS. IF SUCH CONFLICTS ARISE, THE LOOP SHALL BE RELOCATED OR ALTERED AS DIRECTED BY THE ENGINEER.
2. CHISEL CORNERS AFTER SAW CUTTING. BEND SHALL BE FULL DEPTH OF THE SAWCUT.
3. MAXIMUM DEPTH OF SAWCUT SHALL BE DETERMINED BY THE ROADWAY CONSTRUCTION.
   (A) CONCRETE – SAWCUT SLOT DEPTH MIN. OF 2" SHALL BE REQUIRED.
   (B) ASPHALT – SAWCUT SLOT DEPTH MIN. OF 4" SHALL BE REQUIRED.
4. AFTER SAWCUTTING, THE SLOT SHALL BE COMPLETELY CLEAN OF DUST AND DEBRIS AND THOROUGHLY DRY BEFORE INSTALLATION OF WIRE AND SEALANT.
5. THE LOOP DETECTOR WIRE SHALL BE INSTALLED IN A PROTECTIVE FLEXIBLE VINYL PLASTIC TUBING. THE LOOP DETECTOR WIRE AND PLASTIC TUBING SHALL BOTH BE OF A CONTINUOUS LENGTH FROM THE POINT OF SPLICING OF LOOP WIRE TO THE LEAD-IN CABLE WITH THE NUMBER OF TURNS FORMING THE LOOP AS INDICATED ON THE PLAN SHEET OR AS DIRECTED BY THE ENGINEER.
6. RESISTANCE OF THE LOOP IN THE SLOT WITH RESPECT TO GROUND SHALL BE MEASURED BEFORE AND AFTER SEALING. RESISTANCE OF LESS THAN 10 MEGOHMS TO GROUND INDICATES A FAULTY LOOP.
7. LOOP DETECTOR SLOTS CORNERS SHALL BE SEALED WITH A FLEXIBLE EPOXY TYPE SEALANT. THE SEALANT SHALL BE MIXED AND PLACED ACCORDING TO MANUFACTURER'S INSTRUCTIONS. THE SLOTS SHALL BE FILLED COMPLETELY AND NO TRAFFIC ALLOWED TO CROSS THE CUTS UNTIL SEALANT IS CURED. IF LOOP WIRE AND SEALANT CANNOT BE INSTALLED AND CURED BEFORE IT MUST BE OPENED TO TRAFFIC, THE SLOT SHALL BE RESAWED, CLEANED AND DRIED BEFORE WIRING AND SEALING.
8. SPLICING OF THE LOOP WIRE TO THE LEAD-IN CABLE SHALL BE MADE IN PULLBOX OR CONDUIT ACCESS FITTING ONLY. NO SPLICING SHALL BE PERMITTED IN THE SAWSLOT OR CONDUIT.
   (A) SPLICE MADE IN PULLBOX – USE CRIMP TYPE BUTT SPLICE CONNECTIONS BETWEEN THE LOOP WIRE AND THE LEAD-IN CABLE. INDIVIDUALLY TAPE EACH CONNECTION TO HELP INSURE ADEQUATE PROTECTION AGAINST WATER DAMAGE, USE SCOTCH # 33+ VINYL TAPE OR EQUAL. WRAP ENTIRE SPLICE WITH THE SAME VINYL ELECTRICAL TAPE, INCLUDING THE ENDS OF THE PROTECTIVE TUBING AND JACKET OF THE LEAD-IN CABLE. SPLICE SHALL BE SEALED IN A WATERPROOF SPLICE KIT OR COVERED IN A WATERPROOF COATING SUCH AS SCOTCHKOTE. SEE DETAIL Ⓓ.
   (B) SPLICE MADE IN TYPE "C" CONDUIT FITTING – CRIMP THE CONNECTIONS TOGETHER WITH A BUTT SPLICE. INDIVIDUALLY WRAP EACH SPLICE TO INSURE ADEQUATE INSULATION AGAINST WEATHER. WRAP THE ENTIRE SPLICE, INCLUDING PROTECTIVE TUBING AND LEAD-IN CABLE JACKET ENDS, WITH SCOTCH VINYL TAPE. FINISH THE SPLICE BY COATING IT WITH SCOTCHKOTE OR A EQUAL WEATHERPROOFING.
9. ONE 2C LEAD-IN CABLE SHALL BE RUN FROM EACH LOOP TO THE APPROPRIATE DETECTOR AMPLIFIER, UNLESS SPECIFIED SPLICING OF SEVERAL LOOPS IN A PULLBOX OR A "C" CONDULET FITTING USING ONE LEAD-IN CABLE TO THE LOOP AMPLIFIER. THE LEAD-IN CABLE SHIELD SHALL BE GROUNDED ONLY AT THE LOOP DETECTOR AMPLIFIER END OF THE CABLE.

STATE OF OHIO — STEVEN GERALD BAILEY — 49331 — REGISTERED PROFESSIONAL ENGINEER

S.C.H.		8/31/04	UPDATE
T.E.		3/1/98	
	APPROVED	9/29/94	

FED. FUND. SHT.	STATE	PROJECT	FEDERAL NUMBER
5	OHIO		

TRAFFIC SIGNAL DETECTORS (ES-4)

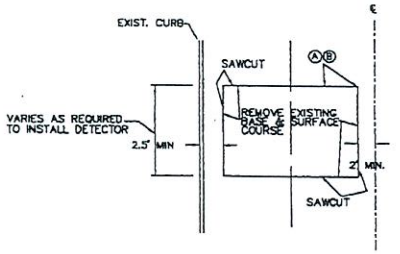
LOOP DETECTOR INSTALLATON SAWCUT

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED Steven Bailey DATE 3-4-99

SCALE	DRAWN	CHECKED	FILE NO.
		VGRD	ES-4-1

APPENDIX H 5/12

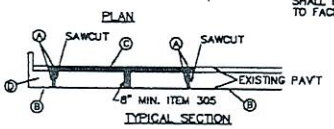


Ⓐ EDGE OF RESTORATION SHALL BE SEALED WITH ITEM 702.01

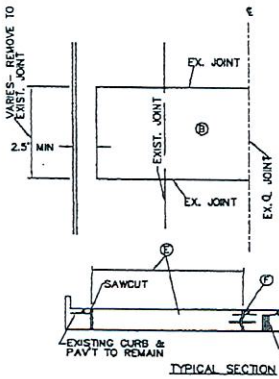
Ⓑ ANY UNDERMINING AT EDGE OF PAVT TO REMAIN SHALL BE FILLED WITH A DRY CONCRETE MIX & RAMMED UNDER EXPOSED EDGE.

Ⓒ 2" OF ITEM 448 COMPACTED IN ACCORDANCE WITH ITEM 401.

Ⓓ SECTION SHOWN IS FOR INTEGRAL CURB WHERE EXISTING CURB IS SEPARATE, PAVT SHALL BE REMOVED TO FACE OF CURB.



PAVEMENT RESTORATION WHERE EXISTING PAVEMENT SURFACE IS ASPHALT CONCRETE REGARDLESS OF TYPE BASE



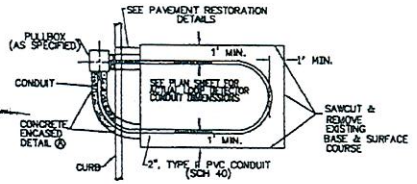
Ⓔ REMOVE EXIST. PAVT INSTALL DETECTOR CONDUIT REPLACE WITH 9" MIN. ITEM 452, PLAIN PORTLAND CEMENT CONCRETE PAVT.

Ⓕ REMOVE EXIST. PAVT TO Q JOINT LEAVING ANCHOR BOLT HOOK INTACT.

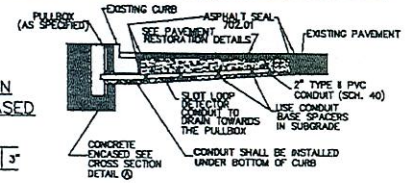
PAVEMENT RESTORATION WHERE EXISTING PAVEMENT SURFACE IS REINFORCED CONCRETE WHICH HAS NOT BEEN RESURFACED

GENERAL NOTES, PAVEMENT RESTORATION

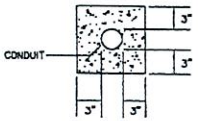
1. AFTER PAVEMENT IS REMOVED, THE EXISTING SUB BASE SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER.
2. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST STATE OF OHIO CONSTRUCTION AND MATERIAL SPECIFICATIONS AND THE CITY OF CINCINNATI SUPPLEMENT. THE MOST RECENT EDITION.
3. AT LOCATIONS WHERE EXISTING PAVEMENT SURFACE IS ASPHALT CONCRETE AND WHERE MAINTENANCE OF TRAFFIC IS A PROBLEM, THE ENGINEER MAY ORDER THE PAVEMENT TO BE RESTORED WITH 8" OF ITEM 301 BASE AND 2" OF ITEM 404.

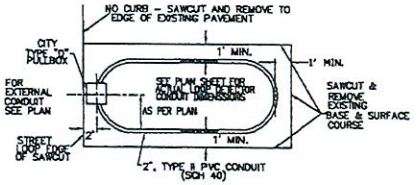


INSTALLATION WITH PULLBOX BEHIND CURB

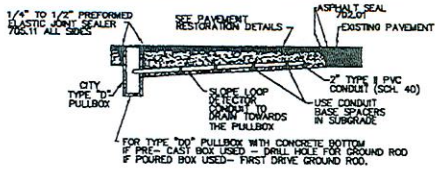


DETAIL A
CROSS SECTION CONCRETE ENCASED CONDUIT





NO CURB OR STREET TYPE INSTALLATION



MATERIALS DESCRIPTION

LOOP DETECTOR WIRE – 1 CONDUCTOR #14 AWG. TRAFFIC SIGNAL CABLE MEETING THE REQUIREMENTS OF IMSA SPECIFICATION 19– 1 OR 20–1, DETECTADUCT OR APPROVED EQUAL.

LEAD– IN CABLE – 2C#14 AWG. STRANDED, SHIELDED, TWISTED PAIR, POLYETHYLENE INSULATED, CROME VINYL JACKETED, RATED 750 VOLTS

SPLICE KITS – PERMANENT WATER RESISTANT– WITH SCOTCHKOTE OR APPROVED EQUAL.

S.C.H.		8/31/04	UPDATE
T.E.		3/1/98	
		10/03/94	

FED. SIG. DIV.	STATE	PROJECT	FEDERAL YEAR
5	OHIO		

INSTALLATION NOTES

1) DETAILS SHOWN ARE FOR REMOVAL OF EXISTING ROADWAY SURFACE & BASE COURSE, INSTALLATION OF LOOP DETECTOR CONDUIT & PAVEMENT RESTORATION. SIMILAR CONDUIT INSTALLATION SHALL BE FOLLOWED WHERE LOOP DETECTOR CONDUITS ARE INSTALLED IN NEW ROADWAY.
   (A) LOOP DETECTOR CONDUITS SHALL ALWAYS PASS UNDER CURB WITH ENOUGH CLEARANCE FOR THE 3" CONCRETE ENCASEMENT.
   (B) THE ENTIRE LOOP DETECTOR CONDUIT SYSTEM SHALL BE SLOPED TO DRAIN TOWARDS THE PULLBOX (1/4" PER FT.)
   (C) THERE SHALL BE NO REINFORCEMENT STEEL USED IN SLAB COVERING THE DETECTOR CONDUIT.
2) LOOP DETECTOR SHALL BE LAYED OUT AS PER PLAN OR AS DIRECTED BY ENGINEER. CHECK FOR ANY OBSTRUCTION ALONG THE PROPOSED RUN OF LOOP CONDUIT SUCH AS MANHOLES IN LINE WITH OR CLOSER THAN 2' FROM CONDUIT, VALVE BOXES, ETC. IF CONFLICT ARISES, CONTACT THE ENGINEER FOR ANY MODIFICATION OF THE LOOP DESIGN.
3) INVESTIGATE UNDERGROUND BEFORE EXCAVATION.
4) THE LOOP DETECTOR CONDUIT SHALL BE 2" TYPE II (SCH. 40) THE CONDUIT SHALL BE FORMED WITH THE SHAPE, RADII & DIMENSIONS AS SPECIFIED ON THE PLAN SHEET OR AS DIRECTED BY THE ENGINEER. THE CONDUIT CAN BE PRESHAPED OR CAN BE FORMED ON SITE. INSTALL A PULL WIRE IN THE LOOP DETECTOR CONDUIT, AS CONDUIT SYSTEM IS BEING FABRICATED.
5) THE 2C#14 AWG. LEAD–IN CABLE SHALL BE CRIMPED WITH A BUTT SPLICE CONNECTION. THE ENTIRE SPLICE OF THE LOOP CABLE & THE 2C#14 LEAD–IN CABLE, INCLUDING A PORTION OF THE CABLE JACKETS SHALL BE ENCASED IN A WATERPROOF SPLICE KIT OR OR SEALED WITH SCOTCHKOTE .
6) THE LOOP DETECTOR SHALL BE TESTED & INSULATION RESISTANCE SHALL EXCEED 10 MEGOHMS.
7) ONE 2C LEAD–IN CABLE SHALL BE RUN FROM EACH LOOP TO THE APPROPRIATE DETECTOR AMPLIFIER, UNLESS SPECIFIED SPLICING OF SEVERAL LOOPS IN A PULLBOX USING ONE LEAD–IN CABLE TO THE LOOP DETECTOR AMPLIFIER IS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. LOOP DETECTOR AMPLIFIER CABLE CONNECTIONS ARE SHOWN DETAIL Ⓑ.

LOOP DETECTOR AMPLIFIER CABLE CONNECTIONS DETAIL Ⓑ

CONNECTOR (MS/AN 3102A– 18– 1P)

PIN	FUNCTION
A	117 VOLT A.C. COMMON
B	CALL RELAY COMMON
C	117 VOLT A.C.
D	LOOP CONNECTION
E	LOOP CONNECTION
F	CALL RELAY– N.O. CONTACTS
G	CALL RELAY– N.O. CONTACTS
H	EQUIPMENT GROUND
I	SPARE
J	SPARE

STATE OF OHIO — STEVEN GERALD BAILEY 49331 — REGISTERED PROFESSIONAL ENGINEER

TRAFFIC SIGNAL DETECTORS (ES–4)

LOOP DETECTOR INSTALLATION IN UNDERGROUND CONDUIT

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED Steve Bailey DATE 3-4-99

ES–4–2

APPENDIX H 6/6